This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

No.

BOSTON
MEDICAL LIBRARY
ASSOCIATION,
19 BOYLSTON PLACE.

No.....

BOSTON
MEDICAL LIBRARY
ASSOCIATION,
19 BOYLSTON PLACE.

PROCEEDINGS

OF THE

American Pharmaceutical Association

AT THE

TWENTIETH ANNUAL MEETING,

HELD IN

CLEVELAND, OHIO,

SEPTEMBER, 1872.

ALSO THE

CONSTITUTION AND ROLL OF MEMBERS.

PHILADELPHIA:
SHERMAN & CO., PRINTERS.
1873.

BOSTON MEDICAL LIBRARY ASSOCIATION. 1872-73.

472

Officers of the Association.

PRESIDENT.

ALBERT E. EBERT, ... Chicago, Ill.

VICE-PRESIDENTS.

SAMUEL S. GARRIGUES, . . . East Saginaw, Mich.
EDWARD P. NICHOLS, ... Newark, N. J.
HENRY C. GAYLORD, ... Cleveland, O.

TREASURER.

CHARLES A. TUFTS, ... Dover, N. H.

PERMANENT SECRETARY.

JOHN M. MAISCH, ... Philadelphia, Pa.

LOCAL SECRETARY.

THOMAS H. HAZARD, ... Richmond, Va.

Standing, Permanent, and Special Committees.

Executive Committee.

Thomas S. Wiegand, Chairman,	Philadelphia.
George Leis,	Lawrence, Kansas.
Charles L. Eberle,	Philadelphia.
Henry J. Menninger,	Raleigh, N. C.
John M. Maisch, Permanent Secretary, *ex-officio*,	Philadelphia.

Committee on Progress of Pharmacy.

C. Lewis Diehl,* Chairman,	Louisville, Ky.
Joseph P. Remington,	Philadelphia.
Emil Scheffer,	Louisville, Ky.
Charles B. Smith,	Newark, N. J.
Thomas H. Hazard, Local Secretary, *ex-officio*,	Richmond, Va.

Committee on Drug Market.

P. Wendover Bedford, Chairman,	New York.
William H. Brown,	Baltimore, Md.
William P. Keffer,	New Orleans, La.
William H. Brill,	Pittsburg, Pa.
William S. Merrell,	Cincinnati, O.

Committee on Papers and Queries.

C. Lewis Diehl, Chairman,	Louisville, Ky.
Henry N. Rittenhouse,	Philadelphia.
John F. Hancock,	Baltimore.

---

* Mr. Louis Dohme, the Chairman elect, is unable to serve, owing to a painful affliction of the eyes. Professor Diehl having volunteered to perform the labor, he was appointed by the President with the advice of the Executive Committee in place of Mr. Dohme.—Editor.

Business Committee.

PAUL BALLUFF, Chairman,	New York.
CHARLES H. DALRYMPLE,	Morristown, N. J.
WILLIAM H. CRAWFORD,	St. Louis.

Committee on Unofficinal Formulas.

EDWARD L. MILHAU,	New York, N. Y.

Committee on Adulteration and Sophistication.

CHARLES RICE, Chairman,	New York, N. Y.
THOMAS N. JAMIESON,	Chicago, Ill.
EMIL SCHEFFER,	Louisville, Ky.

Committee on Legislation.

JOHN M. MAISCH, Chairman,	Philadelphia, Pa.
E. H. SARGENT,	Chicago, Ill.
ROBERT S. MCMURDY,	Albany, N. Y.
HENRY J. MENNINGER,	Raleigh, N. C.
MATTHEW F. ASH,	Jackson, Miss.
HUBERT PRIMM,	St. Louis, Mo.

Committee on Liquor Dealers' License of Apothecaries.

J. FARIS MOORE, Chairman,	Baltimore, Md.
EDWARD R. SQUIBB,	Brooklyn, N. Y.
ROBERT J. BROWN,	Leavenworth, Kansas.
CHARLES H. DALRYMPLE,	Morristown, N. J.
MATTHEW F. ASH,	Jackson, Miss.

Committee on Infringement of Stamp Tax.

CHARLES H. DALRYMPLE, Chairman,	Morristown, N. J.
J. FARIS MOORE,	Baltimore, Md.
WILLIAM HEGEMAN,	New York, N. Y.

Committee to Consider Arrangements for Meeting in 1876.

SAMUEL L. COLCORD,* Chairman,	Boston, Mass.
EDWARD L. MILHAU,	New York, N. Y.
EDWARD S. WAYNE,	Cincinnati, O.
GEORGE BUCK,	Chicago, Ill.
CHARLES L. EBERLE,	Philadelphia, Pa.

* Professor Parrish, the Chairman appointed in 1871, having died on September 9th, 1872, the next member of the Committee takes his place, according to the decision of the President, who appointed Mr. Eberle as the fifth member of the Committee.—EDITOR.

Committee on Formulas for Elixirs.

JOHN F. HANCOCK, Chairman,	Baltimore, Md.
JAMES G. STEELE,	San Francisco, Cal.
HAMPDEN OSBORNE,	Columbus, Miss.
ROBERT J. BROWN,	Leavenworth, Kansas.
OTTMAR EBERBACH,	Ann Arbor, Mich.

Committee on Editorship of Report on Progress of Pharmacy.

WILLIAM PROCTER, JR., Chairman,	Philadelphia, Pa.
EDWARD R. SQUIBB,	Brooklyn, N. Y
EZEKIEL H. SARGENT,	Chicago, Ill.

Committee on Photographic Album.

HENRY W. LINCOLN, Chairman,	Boston, Mass.
P. W. BEDFORD,	New York, N. Y.
JAMES T. SHINN,	Philadelphia, Pa.
LOUIS STREHL,	Chicago, Ill.
MAURICE W. ALEXANDER,	St. Louis, Mo.

Permanent Committee on the Pharmacopœia.

GEORGE F. H. MARKOE,	Boston, Mass.
P. WENDOVER BEDFORD,	New York, N. Y.
ALFRED B. TAYLOR,	Philadelphia, Pa.
J. FARIS MOORE,	Baltimore, Md.
ALBERT E. EBERT,	Chicago, Ill.
MAURICE W. ALEXANDER,	St. Louis, Mo.

List of Officers of the Association

SINCE ITS ORGANIZATION.

PRESIDENTS.

Daniel B. Smith,	Philadelphia,	1852–53
William A. Brewer,	Boston,	1853–54
William B. Chapman,	Cincinnati,	1854–55
John Meakim,	New York,	1855–56
George W. Andrews,	Baltimore,	1856–57
Charles Ellis,	Philadelphia,	1857–58
John L. Kidwell,	Georgetown, D. C.,	1858–59
Samuel M. Colcord,	Boston,	1859–60
Henry T. Kiersted,	New York,	1860–62
William Procter, Jr.,	Philadelphia,	1862–63
J. Faris Moore,	Baltimore,	1863–64
William J. M. Gordon,	Cincinnati,	1864–65
Henry W. Lincoln,	Boston,	1865–66
Frederick Stearns,	Detroit, Mich.,	1866–67
John Milhau,	New York,	1867–68
Edward Parrish,	Philadelphia,	1868–69
Ezekiel H. Sargent,	Chicago,	1869–70
Richard H. Stabler,	Alexandria, Va.,	1870–71
Enno Sander,	St. Louis, Mo.,	1871–72
Albert E. Ebert,	Chicago, Ill.,	1872–73

FIRST VICE-PRESIDENTS.

George W. Andrews,	Baltimore,	1852–53
George D. Coggeshall,	New York,	1853–54
Henry T. Cummings,	Portland, Me.,	1854–55
Charles B. Guthrie,	Memphis, Tenn.,	1855–56
John L. Kidwell,	Washington, D. C.,	1856–57
James Cooke,	Fredericksburg, Va.,	1857–58
Edward R. Squibb,	Brooklyn, N. Y.,	1858–59
William Procter, Jr.,	Philadelphia,	1859–60
William J. M. Gordon,	Cincinnati,	1860–62
John Milhau,	New York,	1862–63
John M. Maisch,	Philadelphia,	1863–64

Richard H. Stabler,	Alexandria, Va.,	1864–65
George C. Close,	Brooklyn, N. Y.,	1865–66
Edward Parrish,	Philadelphia,	1866–67
Robert J. Brown,	Leavenworth, Kansas,	1867–68
Ferris Bringhurst,	Wilmington, Del.,	1868–69
Ferdinand W. Sennewald,	St. Louis, Mo.,	1869–70
Flemming G. Grieve,	Milledgeville, Ga.,	1870–71
C. Lewis Diehl,	Louisville, Ky.,	1871–72
Samuel S. Garrigues,	East Saginaw, Mich.,	1872–73

SECOND VICE-PRESIDENTS.

Samuel M. Colcord,	Boston,	1852–53
Alexander Duval,	Richmond, Va.,	1853–54
John Meakim,	New York,	1854–55
Charles Ellis,	Philadelphia,	1855–56
Frederick Stearns,	Detroit, Mich.,	1856–57
Samuel P. Peck,	Bennington, Vt.,	1857–58
James O'Gallagher,	St. Louis, Mo.,	1858–59
Joseph Roberts,	Baltimore,	1859–60
William S. Thompson,	Baltimore,	1860–62
Eugene L. Massot,	St. Louis, Mo.,	1862–63
Charles A. Tufts,	Dover, N. H.,	1863–64
Enno Sander,	St. Louis, Mo.,	1864–65
Elijah W. Sackrider,	Cleveland, O.,	1865–66
Ezekiel H. Sargent,	Chicago,	1866–67
N. Hynson Jennings,	Baltimore,	1867–68
Edward S. Wayne,	Cincinnati,	1868–69
John H. Pope,	New Orleans,	1869–70
James G. Steele,	San Francisco, Cal.,	1870–71
George F. H. Markoe,	Boston, Mass.,	1871–72
Edward P. Nichols,	Newark, N. J.,	1872–73

THIRD VICE-PRESIDENTS.

C. Augustus Smith,	Cincinnati,	1852–53
Charles B. Guthrie,	Memphis, Tenn.,	1853–54
Joseph Laidley,	Richmond, Va.,	1854–55
Henry F. Fish,	Waterbury, Conn.,	1855–56
Henry T. Kiersted,	New York,	1856–57
A. E. Richards,	Plaquemine, La.,	1857–58
Robert Battey,	Rome, Ga.,	1858–59
Edwin O. Gale,	Chicago, Ill.,	1859–60
Theodore Metcalf,	Boston,	1860–62
J. Faris Moore,	Baltimore,	1862–63
George W. Weyman,	Pittsburg, Pa.,	1863–64
Thomas Hollis,	Boston,	1864–65
Charles A. Heinitsh,	Lancaster, Pa.,	1865–66
John W. Shedden,	New York,	1866–67
Daniel Henchman,	Boston,	1867–68
Albert E. Ebert,	Chicago,	1868–69
Joel S. Orne,	Cambridgeport, Mass.,	1869–70

Eugene L. Massot,	St. Louis, Mo.,	1870–71
Matthew F. Ash,	Jackson, Miss.,	1871–72
Henry C. Gaylord,	Cleveland, O.,	1872–73

TREASURERS.

Alfred B. Taylor,	Philadelphia,	1852–54
Samuel M. Colcord,	Boston,	1854–56
J. S. Aspinwall,	New York,	1856–57
Samuel M. Colcord,	Boston,	1857–59
Ashel Boyden,	Boston,	1859–60
Henry Haviland,	New York,	1860–63
J. Brown Baxley,	Baltimore,	1863–65
Charles A. Tufts,	Dover, N. H.,	1865–73

RECORDING SECRETARIES.

George D. Coggeshall,	New York,	1852–53
Edward Parrish,	Philadelphia,	1853–54
Edward S. Wayne,	Cincinnati,	1854–55
William J. M. Gordon,	Cincinnati,	1855–59
Charles Bullock,	Philadelphia,	1859–60
James T. Shinn,	Philadelphia,	1860–62
Peter W. Bedford,	New York,	1862–63
William Evans, Jr.,	Philadelphia,	1863–64
Henry N. Rittenhouse,	Philadelphia,	1864–65
John M. Maisch,	Philadelphia,	1865–73

CORRESPONDING SECRETARIES.

William Procter, Jr.,	Philadelphia,	1852–53
William B. Chapman,	Cincinnati,	1853–54
William Procter, Jr.,	Philadelphia,	1854–57
Edward Parrish,	Philadelphia,	1857–58
Ambrose Smith,	Philadelphia,	1858–59
William Hegeman,	New York,	1859–60
Peter W. Bedford,	New York,	1860–62
John M. Maisch,	Philadelphia,	1862–63
Peter Wendover Bedford,	New York,	1863–66

LOCAL SECRETARIES.

Peter Wendover Bedford,	New York,	1866–67
Alfred B. Taylor,	Philadelphia,	1867–68
Henry W. Fuller,	Chicago,	1868–69
J. Faris Moore,	Baltimore,	1869–70
William H. Crawford,	St. Louis, Mo.,	1870–71
Henry C. Gaylord,	Cleveland, O.,	1871–72
Thomas H. Hazard,	Richmond, Va.,	1872–73

PROPOSED AMENDMENTS

TO BE ACTED ON AT THE TWENTY-FIRST ANNUAL MEETING.

AMENDMENT TO THE CONSTITUTION.

Resolved, That the following article be appended to the constitution, to wit:

Article V. There shall be set apart from the funds of the Association such sum as may be annually determined, for the creation of a sinking fund for the uses and benefit of the Association, and that such fund be invested by the Treasurer as directed in Article IV.

Resolved, That Article V be called Article VI.

AMENDMENTS TO THE BY-LAWS.

Laid over until the First Session of the Twenty-first Annual Meeting.

1. Amend Article VI, Chapter VI, to make it read, *All local organizations of pharmacists* shall be entitled, &c.

2. In order to have the Committee on Specimens appointed at the first meeting, the following change in the by-laws is proposed:

Remove Section 8 of Article III, in Chapter VII, so as to follow Section 8 in Article II of same chapter.

LIST OF QUERIES

TO BE REPORTED ON AT THE TWENTY-FIRST ANNUAL MEETING.

---

1. Can a permanently flexible Gelatine Plaster be prepared by some addition to the isinglass used, which will prevent the tendency of the plaster to curl and irritate the skin mechanically?

Accepted by Henry N. Rittenhouse, of Philadelphia.

2. Does the root of Frazera Walteri contain Berberina?

Accepted by T. L. A. Greve, of Cincinnati, O.

3. What is the true character of the Liriodendrin of Prof. Emmet, and what value has it as a medicinal agent?

For general acceptance.

4. An essay on the culture of the Lemon abroad and within the United States, on its products contributed to commerce, and more especially the commercial sources, modes of preparation, and the best plan of preserving the volatile oil.

For general acceptance.

5. The use of Paper Pulp, stirred in a turbid aqueous liquid before pouring it on a muslin or flannel cloth, as a means of filtration, was suggested by M Desmarets, and is often useful in liquids difficult to manage in ordinary filters. What is the most practicable manner of preparing the pulp and employing it for this purpose, with some examples of its application?

Accepted by J. F. Judge, of Cincinnati, O.

6. What are the best methods of dispensing Phosphorus in liquid mixtures and in pills so as to protect it from oxidation?

Accepted by Wm. Neergaard, of New York.

7. "Sapo Viridis" vel "Sapo Mollis" is sometimes prescribed. What is the easiest plan of making it from olive oil and liq. potassæ?

Accepted by P. Fred. Lehlbach, New York.

8. What influence has the abundant use of Wood Ashes as a manure to the Grape on the proportion of cream of tartar it yields?

For general acceptance.

9. What is the comparative medicinal value of Wild (field) Garlic of the United States, and the Allium sativum, and is alcohol (as recommended by A. P. Sharp) the best agent for preserving garlic; if so, how can it be used so as to leave the appearance of the bulb unchanged?

Accepted by Wallace Procter, Philadelphia.

10. Can Balsam of Tolu be rendered emulsionizable like copaiba?

Accepted by P. W. Bedford, New York.

11. The statistics of the American Bromine production.

Accepted by Dr. S. S. Garrigues, East Saginaw, Mich.

12. What merit has Petroleum Benzin as a solvent for the extraction of oleo-resinous drugs like buchu, chenopodium, &c.?

Accepted by Joseph P. Remington, Philadelphia.

13. Does not the acknowledged value of Colchicum, and its liability to vary in activity, suggest the preparation of a working formula for medicinal colchicia as a new pharmaceutical?

Accepted by Ottmar Eberbach, Ann Arbor, Mich.

14. Is the imported Male Fern derived from the same plant as that collected here, and will the latter yield as much oleo-resin?

For general acceptance.

15. Can the proportion of Sugar and Honey be improved in the officinal process for pil. ferri carbonatis?

Accepted by Edward D. Chipman, Frankford, Philadelphia.

16. What is the best fluid preparation of Tartrate of Iron and Potassa for dispensing that will keep well?

Accepted by C. Hohly, Toledo, Ohio.

17. What is the origin or source of the Sulphur found in commercial "iron by hydrogen?" What are the practical difficulties in avoiding its presence, and how may they be best overcome?

Accepted by J. F. Judge, Cincinnati, Ohio.

18. What is the actual value of Orange-colored Window Glass as a means of preventing the chemical action of light on volatile oils?

Accepted by Wm. Procter, Jr., Philadelphia.

19. What is the influence of Direct Sunlight on Fixed Oils when exposed in sealed glass bottles, and is such exposure injurious?

Accepted by Prof. J. F. Moore, Baltimore.

20. Cannot an improvement be effected in the material and workmanship of cheap Ointment Boxes?

For general acceptance.

21. What is the correct time to collect the leaves of biennial plants like Lobelia, Hyoscyamus, and Digitalis?

Accepted by Prof. John M. Maisch, Philadelphia.

22. An essay on the chemical history, qualities, and uses of the Catalpa tree (Catalpa cordifolia).

For general acceptance.

23. Is Chiccory Root used as an adulteration or substitution for Taraxacum in American commerce?

Accepted by L. M. Rice, New York.

24. Is there no better method of preparing Cucumber Ointment than that now in use by heating the juice with fats?

Accepted by William Procter, Jr., Philadelphia.

25. A chemical essay on the White Locust (Robinia pseudo-acacia) root, wood, and flowers.

For general acceptance.

26. Can any improvement be suggested in Graduated Measures by which greater uniformity can be attained?

Accepted by Dr. W. H. Pile, Philadelphia.

27. An essay, suggestive and critical, on the best plan of arranging and managing the store-rooms and cellar of a well-conducted dispensing store.

Accepted by J. F. Hancock, Baltimore.

28. An essay, suggestive and critical, on labelling shop furniture, stock-bottles, and vials, in view of permanence, regularity, and safety; also a label case to facilitate the finding of same.

Accepted by Geo. H. Schafer, Fort Madison, Iowa.

29. An essay on Cleanliness as a pharmaceutical virtue, and specially on the means and methods of cleaning bottles, mortars, and vessels of all kinds in daily or occasional use.

Accepted by J. M. Ayers, Cincinnati, Ohio.

30. What shall I read, and where shall I begin? An essay in reply to this constantly recurring query of beginners, who are confused by the mass of books presented to them as the source of knowledge they need.

Accepted by Wm. Procter, Jr., Philadelphia.

31. An essay on what are Poisons in Pharmacy, and what plan is most efficient in guarding them from improper use *in the shop.*

Accepted by Charles L. Eberle, Philadelphia.

32. An essay on the insect enemies of drugs, on the best means of protecting sound drugs from their ravages, and on the means of destroying them when already in drugs?

Accepted by Wm. Saunders, London, Ontario.

33. Is Sarsaparilla altered in its sensible properties and injured in its medicinal qualities by the heat of a water or steam bath?

Accepted by J. F. Judge, Cincinnati, Ohio.

34. When Chloral is accurately hydrated it makes a milky solution in water, but when either under-hydrated or over-hydrated it yields a clear solution. What is the cause of this difference, and why does the time required for a solution to become clear vary from a few minutes to several hours?

Accepted by C. Lewis Diehl, Louisville, Ky.

35. The present strength of Alcohol directed by the U. S. Pharmacopœia for Tincture of Columbo is improper. What is the best strength of Alcohol to exhaust Columbo for tincture and fluid extracts?

Accepted by Charles L. Eberle, Philadelphia.

36. What is the comparative weight of Seeds and Capsules of the several commercial varieties of Cardamoms, and what is the comparative aromatic value of the separated seeds?

Accepted by J. Newport Potts, Baltimore.

37. Should not Aromatic Powder (U. S. P.) be made by powdering the crude ingredients all together, to facilitate pulverization?

Accepted by Joseph L. Lemberger, Lebanon, Pa.

38. How do the Subnitrate and Subcarbonate of Bismuth of commerce compare with the standard of the U. S. Pharmacopœia?

Accepted by Thomas F. Main, New York.

39. How does the Prussic Acid for medicinal use, made by the several chemists, correspond in strength with the requirements of the U. S. Pharmacopœia?

Accepted by Frank S. Jones, New York.

40. What is the purity and state of hydration of the Burnt Alum found in the market, and is it prepared from Ammonia or Potassa Alum?

Accepted by Thomas Starr, New York.

41. What is the commercial source of the Aconitia found in the American drug market, and does it correspond with the English or German in activity?

For general acceptance.

42. What is the purity of commercial Tartaric Acid and what is the normal percentage of moisture?

Accepted by Henry J. Rose, Toronto, Canada.

43. What is the degrees of strength and the purity of the so-called chemically pure Mineral Acids of the different manufacturers?

Accepted by P. W. Bedford, New York.

44. A solution of a Salt of Quinia for hypodermic use is much needed.

It is stated to be comparatively easy to prevent the crystallization of quinia salts, by the presence of a very small proportion of many other salts, such as chloride of sodium, chloride of ammonium, &c.

Solutions for hypodermic use should not be caustic nor very irritating, and should contain a proportion of quinia equivalent to thirty grains of the ordinary sulphate of quinia in each fluid drachm. Such solutions when obtained can easily be protected from change by very small quantities of carbolic acid.

Query: To obtain a solution of a Salt of Quinia adapted to hypodermic use?

Accepted by A. P. Sharp, Baltimore, Md.

45. Solutions of Salts of Atropia, Strychnia, and other alkaloids for medicinal use are liable to be spoiled by the growth of microscopic organisms. This is prevented by the addition of solution of carbolic acid.

Query: How small a proportion of Carbolic Acid will protect such solutions from change?

Accepted for Edward H. Squibb by E. R. Squibb.

46. When a strip of paper moistened with water of ammonia is held near the mouth of a bottle of chloral, white fumes are generally noticeable, particularly in warm weather, on close observation. Often the fumes are so white as to be easily seen, and sometimes on a very damp and hot day they are visible without the use of ammonia.

Query: Is this an evidence of the decomposition of Chloral, varying only in amount or degree from that decomposition which is evident when the fumes

are very copious and attended with the smell of chlorous and hypochlorous acids, and what are the common accidents which determine the decomposition of chloral?

Accepted by Prof. Maisch, Philadelphia, Pa.

47. On the best method of assaying Cantharides and their preparations for Cantharidin.

Accepted by John M. Maisch, Philadelphia, Pa.

48. The berries and root of the Phytolacca Decandra possess value as a remedy in rheumatism. To what principle can this property be attributed?

Continued to Charles F. Fredigke, Chicago, Ill.

49. What attention has been given to the collection of Argol in the vine districts of California? Is it obtainable in sufficient quantities to be remunerative?

Continued to James G. Steele, San Francisco, Cal.

50. What are the physical properties of Nitrous Ether? What conditions favor and what prevent its decomposition? What are the best means of ascertaining the proportion of Nitrous Ether in the Spirit of Nitrous Ether?

Continued to N. Gray Bartlett, Chicago, Ill.

52. Does the sugar-coating of Pills impair their solubility? Do the pills containing alkaloids, those of Quinia, Morphia, &c., as furnished by different factors, contain the amounts stated?

Continued to James R. Mercein, Jersey City, N. J.

53. Does Wood Creasote exist in the American market? If not, what is supplied instead?

Continued to Enno Sander, St. Louis, Mo.

54. Is an improved formula for Soap Liniment needed? How may the officinal formula be advantageously modified?

Continued to John W. Ehrman, Chicago, Ill.

55. From what source is American Cod-Liver Oil derived, and who prepares it for the market?

Continued to S. M. Colcord, Boston, Mass.

56. What are the so-called Resinoids and active principles now so largely used? Are they uniform in character, as made by different persons, or at different times by the same person? Do they medicinally represent the plants from which they are derived?

Continued to W. J. M. Gordon, Cincinnati, O.

57. Will a stated percentage of Glycerin added to solid extracts preserve them from drying or change, and thereby secure uniform medicinal results?

Continued to W. J. M. Gordon, Cincinnati, O.

58. What is the best formula for a Glycerole of Pepsin? Is Glycerin a better solvent for Pepsin than Wine or other menstrua, considered therapeutically and practically?

Continued to James R. Mercein, Jersey City, N. J.

59. The commercial value of Glycerin being largely reduced, can it be used with medicinal advantage as a partial substitute for Alcohol and Sugar in the preparation of Tinctures, Fluid Extracts, Elixirs, and Syrups?

Continued to Joseph Harrop, Leavenworth, Kansas.

60. It has been suggested that the use of Glycerin in Fluid Extracts is frequently detrimental to their quality, or unnecessary. In what respect is this assertion reliable?

Continued to George Buck, Chicago, Ill.

61. Fluid Extract of Sarsaparilla, as prepared by the officinal formula, deposits upon standing. Is it not advisable to use less sugar, and allow some of the alcoholic menstruum to be retained by the finished preparation?

Continued to J. F. Judge, Cincinnati, O.

62. Vanilla. How can this substance be best exhausted? Give a formula for the preparation of a satisfactory fluid preparation of it.

Continued to E. P. Nichols, Newark, N. J.

63. Glucose. This substance is now very abundant in the market. What use can be made of it in pharmacy?

Continued to Joseph M. Hirsh, Chicago, Ill.

64. What is the poisonous principle of Sneezeweed, Helenium autumnale, Linn., and can an antidote be suggested to its deleterious effects?

Continued to Prof. John M. Maisch, Philadelphia, Pa.

65. Who is responsible, the Physician, Pharmacist, or Manufacturer, in dispensing sugar-coated pills or other proprietary remedies?

Continued to Prof. J. Faris Moore, Baltimore, Md.

66. To what extent are the Essential Oils adulterated or sophisticated? How may impurities be detected?

Continued to William S. Thompson, Baltimore, Md.

67. Pancreatic juice has been highly recommended to assist the assimilation of fat in the human stomach. In what manner is the fluid obtained, and what permanent preparation of it can be made that will be suitable for administration?

Continued to J. Henry Hancock, Baltimore, Md.

68. What is the active principle of Wahoo Bark (Euonymus atropurpureus)?

Continued to Charles E. Dohme, Baltimore, Md.

69. Tincture of Blood-root deposits a sediment upon standing. Is the activity of the preparation thereby impaired, and is there a more suitable alcoholic strength for this tincture?

Continued to Louis Dohme, Baltimore, Md.

70. In what respect does deodorized Tincture of Opium differ from the "Elixirs" of Opium in the market? The tincture prepared by the United States Pharmacopœia process gradually deposits a dark-colored sediment. Are any of the active principles thrown down in connection with the deposit?

Continued to Charles E. Dohme, Baltimore, Md.

CONTENTS.

PAGE

PREFATORY NOTICE, ... 21

List of Members present at the Twentieth Annual Meeting, . . . 28

MINUTES OF THE TWENTIETH ANNUAL MEETING.

Minutes of the First Session, ... 25

Presentation of Credentials, ... 25

Election of Members, ... 26

Report of Committee on Credentials, ... 27

Call of Roll of Members, ... 28

Reports of Committees received, ... 28

Report on Liquor Dealers' License of Apothecaries, . . . 29

Report of the Executive Committee, ... 30

Report of the Permanent Secretary, ... 31

Resolutions of the College of Physicians of Philadelphia, . . 34

Committee on Nominations appointed, ... 35

Report of Business Committee on Amendment to By-laws, . . 36

President's Annual Address, ... 38

Committee on President's Address and Secretary's Report appointed, 44

Minutes of the Second Session, ... 44

Report of the Nominating Committee, ... 45

Report of Applications for Membership, ... 46

Additional Report of Committee on Credentials, ... 47

Objection against the Admission of the Delegate from the Georgetown College School of Pharmacy referred to a Committee, . . 47

Election of Officers, ... 48

Inaugural Address of President Ebert, ... 48

Election of Members, ... 48

Treasurer's Report, ... 48

Auditing Committee appointed, ... 51

Consideration of Amendment to the By-laws, ... 51

Indefinite Postponement of the same, ... 53

Invitation Received, ... 53

Report of the Auditing Committee, ... 53

Committee on Specimens appointed, ... 54

PAGE

Discussion on Acceptance of Queries, ... 54
Photographic Album Presented in name of Mr. Henry B. Brady, . 56
Weather-maps and Bulletins Presented from Chief Signal Officer U. S. A., ... 57
Visit to the Exhibition, ... 59
Minutes of the Third Session, ... 59
Report on Legislation read, ... 60
Resolution Relating to Life Membership, ... 60
Special Reports read, ... 60
Discussion on Cantharidate of Potassa, ... 61
Discussion on Syrup of Senega, ... 64
Discussion on Drug Mill, ... 64
Discussion on Creasote and Carbolic Acid, ... 66
Resolution of Invitation to Faculties of Medical Colleges, . . 67
Minutes of the Fourth Session, ... 67
Telegram from Chairman of Committee on Progress of Pharmacy, 68
Committee on Next Annual Meeting appointed, ... 69
Report of Committee on the Delegation from Georgetown College, 69
Recommitment to Committee of Subject of Representation, . . 71
Additional Report of Committee on Credentials, ... 72
Election of Members, ... 72
Telegram from Committee on Unofficial Formulas, ... 72
Continuance of Committees, ... 73, 74
Committee on Adulteration and Sophistication appointed, . . 74
Report of Committee on President's Address and Secretary's Report, 74
Discussion on Committee on Progress of Pharmacy, ... 75
Invitation to Lake Excursion discussed, ... 78, 85
Discussion on Elixirs, ... 80
Amendment to Constitution proposed, ... 86
Minutes of the Special Session, ... 86
Call for Special Scientific Meeting, ... 86
Reading of Special and Volunteer Reports, ... 87
Discussion on Seidlitz Powders, ... 89
Mr. R. P. Smith's Address on Glassware, ... 90
Postponement of Lake Excursion, ... 94
Minutes of the Fifth Regular Session, ... 94
Report of Committee on Stamp Tax, ... 94
Presentation of Members' Photographic Album, ... 95
Resolutions Presented and Adopted, ... 95
Letter from Mr. H. W. Lincoln, ... 96
Reading of Papers, ... 97
Report of Committee on Next Annual Meeting, ... 97
Place and Time of Next Annual Meeting agreed upon, . . 102, 103
Disposal of Queries not answered, ... 103
Report of Committee on Papers and Queries, ... 105
Election of Local Secretary, ... 110
Report on Representative Delegates and Amendments to By-laws, . 110

PAGE

Resolutions of Thanks, ... 110
Committee on Elixirs, &c., appointed, ... 111
Election of Active and Honorary Members, ... 111
Committee on Editorship of Report on Progress of Pharmacy, . 112
Adjournment, ... 112
Entertainments of Visiting Members, ... 112

REPORTS OF COMMITTEES.

Report of the Committee on the Drug Market, ... 114
Comparative List of Prices for Original Packages, ... 128
Rates of Import Duty on Drugs and Druggists' Sundries, . . 132
Report on the Philadelphia Drug Market, ... 142
Report of the Committee on Legislation, ... 145
Report of the State Board of Pharmacy of Rhode Island, . . 146
I. New York Pharmacy Act, ... 150
II. Baltimore Pharmacy Act, ... 158
III. Philadelphia Pharmacy Act, ... 156
IV. San Francisco Pharmacy Act, ... 158
On Pharmaceutical Legislation in the United States. By Paul Balluff, ... 161
Report of the Committee on Exhibition, ... 168

SPECIAL AND VOLUNTEER REPORTS AND ESSAYS.

I. Pharmacy:
The Preliminary Education of Apprentices. By Prof. Edward Parrish, ... 173
On an Herb Press. By Joseph Harrop, ... 179
On a Serviceable Drug Mill. By Thomas J. Covell, . . . 180
Note on a New Form of Percolator for Fluid Extracts, Tinctures, &c. By Edward R. Squibb, M.D., ... 182
The Dispensing Counter. By John F. Hancock, ... 192
On the Manufacture of Chemical and Pharmacal Preparations. By Charles C. Fredigke, ... 200
Unofficinal Preparations. By Robert J. Brown, ... 207
Seneka. By R. Rother, ... 209
A Protected Solution of Ferrous Nitrate. By Robert W. Gardner, 218
On Extractum Cannabis Indicæ. By William Saunders, . . 220
Note on the Triplex Pill of Dr. John W. Francis. By E. R. Squibb, M.D., ... 222
Vegetable Wax in Pharmaceutical Preparations. By George C. Close, ... 223
Compound Elixir of Mandrake. By George H. Schafer, . . 224
II. Materia Medica:
Note on Rhubarb. By Edward R. Squibb, M.D., ... 226
Note on Aconite Root. By Edward R. Squibb, M.D., . . . 229

PAGE

Sneezeweed. By John M. Maisch, ... 233
Note on Aloes. By Edward R. Squibb, M.D., ... 236
Tennessee Opium. By Benjamin Lillard, ... 241
On Oil of Erigeron. By Eugene J. Weeks, ... 242
On Commercial Creasote. By Enno Sander, ... 244
On the Production of Milk Sugar in the United States. By Joseph L. Lemberger, ... 245
On Chinese Blistering Bugs. By John M. Maisch, ... 246

III. Chemistry:

Analysis of Glacial Phosphoric Acid of Commerce. By Professor Albert B. Prescott, ... 259
Note on Citrate of Bismuth and Ammonia. By E. R. Squibb, M.D., 260
Alkaloids contained in Commercial Elixirs. By Ottmar Eberbach, 264
Seidlitz Powders. By C. William Grassly, ... 273

Appendix:

South Carolina Pharmacy Act, ... 301
The Signal Service of the United States, ... 303
The Practical Use of Meteorological Reports and Weather-maps, ... 304
The Cautionary Signal, ... 309

List of Societies, &c., receiving Complimentary Copies of the Proceedings, ... 315
List of Publications received, ... 318
Authorized Agents, ... 319
Constitution and By-laws, with Form of Application for Membership, . 320
Roll of Members, ... 329
List of Deceased Members, ... 346
List of Resignations, ... 349
List of Members dropped from the Roll, ... 349
Alphabetical Index of Contents, ... 350

PREFATORY NOTICE.

For the first time since the year 1857, the Proceedings are issued without the Report on the Progress of Pharmacy, for which the undersigned waited even longer than directed by the Association, in the hope of obtaining at least the partial report which they were led to expect. The unfortunate affliction which prevents the chairman of the same committee, elected at the last meeting, to act, necessitated considerable correspondence; the willingness of Professor Diehl to fill the unexpected vacancy is very commendable, and from his past services in the same capacity the Association may rely on an equally good and comprehensive report at the next meeting.

The unlooked for death of Professor Edward Parrish, from the Committee on the Meeting of 1876, whose report failed to reach the Association, although it was known to be completed, makes the next member, Mr. S. M. Colcord, of Boston, chairman of the committee, and the vacancy in the committee was filled by the appointment of Mr. Charles L. Eberle, of Philadelphia.

The Proceedings will be furnished at the following prices for the several issues, which *include* the postage:

1851, 1852, 1853, 1855,	unbound,	$0 25	each.			
1857,	"	0 50		bound,	$0 80	
1858, 1859,	"	1 50	"	"	1 75	each.
1860,	"			"	1 25	
1862, 1863,	"			"	1 50	"
1864, 1865, 1866,	"	1 50	"	"	1 80	"
1867,	"	2 20		"	2 50	
1868, 1869, 1870,	"	2 50	"	"	3 00	"
1871,	"	4 50	"	"	5 25	
1872,	"	2 50		"	3 00	

1854 and 1856, out of print; none published in 1861.

The entire set of bound volumes, the first four in paper covers, will be furnished at $27.50; the set of unbound volumes, including the bound ones for 1860, 1862, 1863, are held at $24. The prices for entire sets are *exclusive of postage or express charges.*

Applications for membership—to be acted on at the twenty-first annual meeting, which will be held in Richmond, Va., on the third Tuesday of September next—should be addressed *early* to the undersigned, to whom also—or

to the Treasurer, Dr. Chas. A. Tufts, Dover, N. H.—the dues for the first year should be remitted, to avoid unnecessary correspondence.

Chairmen of committees and members contributing papers are requested to observe the regulations of Chapter V, Articles VII, IX, and X, of the By-Laws.

THOMAS S. WIEGAND,
Chairman of the Executive Committee, 528 Arch St., Philadelphia.

JOHN M. MAISCH,
Permanent Secretary, No. 145 North Tenth St., Philadelphia.

List of Members

PRESENT AT THE TWENTIETH ANNUAL MEETING.

Joseph Abel, Pittsburg, Pa.
George Aldridge, Bay City, Mich.
John Alsdorf, Tarrytown, N. Y.
J. M. Ayers, Cincinnati, O.
Chas. W. Badger, Newark, N. J.
Paul Balluff, New York, N. Y.
P. H. Barr, Alliance, O.
P. W. Bedford, New York, N. Y.
W. J. Bertolett, Shreve, O.
James E. Blake, New Bedford, Mass.
A. W. Bock, Cleveland, O.
Abraham Boyd, Utica, O.
W. H. Brill, Alleghany City, Pa.
Robert J. Brown, Leavenworth, Kas.
J. F. Caldwell, Pittsburg, Pa.
G. E. Carman, Jersey City, N. J.
Edward D. Chipman, Phila., Pa.
A. B. Clark, Jr., Galesburg, Ill.
F. X. Crawley, St. Louis, Mo.
Thomas Daniels, Toledo, O.
David Davis, Jr., Allegheny City, Pa.
George F. Dege, New York, N. Y.
C. Lewis Diehl, Louisville, Ky.
Ottmar Eberbach, Ann Arbor, Mich.
Chas. L. Eberle, Philadelphia, Pa.
Albert E. Ebert, Chicago, Ill.
F. H. Eggers, Allegheny City, Pa.
Robert W. Gardner, Jersey City, N. J.
Samuel S. Garrigues, East Saginaw, Mich.
Alexander Garver, Navarre, O.
Henry C. Gaylord, Cleveland, O.
C. J. Geiger, Canton, O.
W. J. M. Gordon, Cincinnati, O.
T. L. A. Greve, Cincinnati, O.
J. F. Grossklaus, Navarre, O.
Chas. W. Hancock, Philadelphia, Pa.
John F. Hancock, Baltimore, Md.
David Hays, New York, N. Y.
F. Harrington, Logan, O.
Wm. H. Hartness, Cleveland, O.
Chas. A. Heinitsh, Lancaster, O.
Hugo Hensch, Cleveland, O.
D. P. Hickling, Washington, D. C.
F. P. Hill, Elyria, O.
C. Hohly, Toledo, O.
W. F. Horton, Boston, Mass.
George M. Howard, Washington, D. C.
Bruce Huling, Cleveland, O.
Parker P. Ink, Washington, Iowa.
Thomas N. Jamieson, Chicago, Ill.
Frank S. Jones, New York, N. Y.
J. F. Judge, Cincinnati, O.
George W. Kennedy, Pottsville, Pa.
Alfred S. Lane, Rochester, N. Y.
P. Fred. Lehlbach, New York, N. Y.
George Leis, Lawrence, Kan.
Jos. L. Lemberger, Lebanon, Pa.
Benjamin Lillard, Nashville, Tenn.
Charles Ludlow, Springfield, O.
Harrison S. Lutz, Alleghany City, Pa.
Thos. D. McElhenie, Cleveland, O.
William McIntyre, Philadelphia, Pa.
Thomas F. Main, New York, N. Y.

John M. Maisch, Philadelphia, Pa.
A. Mayell, Cleveland, O.
H. J. Menninger, Raleigh, N. C.
L. J. Merkel, Cleveland, O.
J. C. Meseroll, Jackson, Mich.
William Moll, Saginaw, Mich.
J. Faris Moore, Baltimore, Md.
J. Penn Moore, Cleveland, O.
L. J. Munson, Waterbury, Conn.
Daniel Myers, Cleveland, O.
L. Neal, Youngstown, O.
Jos. F. Neely, Allegheny City, Pa.
William Neergaard, New York, N. Y.
E. P. Nichols, Newark, N. Y.
Le Roy S. Oatman, Angola, N. Y.
Lewis P. Ohliger, Wooster, O.
Joel S. Orne, Cambridgeport, Mass.
Hampden Osborne, Columbus, Miss.
J. B. Patten, Boston, Mass.
T. H. Patterson, Chicago, Ill.
N. Pierpoint, Young America, Ill.
W. H. Pile, Philadelphia, Pa.
J. Newport Potts, Baltimore, Md.
Wm. Procter, Jr., Philadelphia, Pa.
M. L. M. Peixotto, New York, N. Y.
W. H. Raser, Philadelphia, Pa.
Joseph P. Remington, Phila., Pa.
H. F. Reum, Cincinnati, O.
L. M. Rice, New York, N. Y.
A. Ritson, Columbus, O.
Henry N. Rittenhouse, Phila., Pa.
James S. Robinson, Memphis, Tenn.
Wm. F. Roche, Philadelphia, Pa.
W. H. Rogers, Middletown, N. Y.
Henry J. Rose, Toronto, Can.
Enno Sander, St. Louis, Mo.
William Saunders, London, Can.
Geo. H. Schafer, Fort Madison, Iowa.
Emil Sheffer, Louisville, Ky.
W. J. Scott, Cleveland, O.
A. P. Sharp, Baltimore, Md.
H. S. Sherwood, Poughkeepsie, N. Y.
James T. Shinn, Philadelphia, Pa.
L. Simoneau, East Saginaw, Mich.
Geo. W. Sloan, Indianapolis, Ind.
A. L. Snyder, Bryan, O.
Sophus Sorensen, Meadville, Pa.
P. J. Spenzer, Cleveland, O.
Edward R. Squibb, Brooklyn, N. Y.
Thomas Starr, New York, N. Y.
J. F. Street, Bay City, Mich.
William F. Thompson, Baltimore, Md.
Charles A. Tufts, Dover, N. H.
R. W. Vandervoort, Newark, N. J.
C. P. Vaupel, Cleveland, O.
Samuel J. Wagener, Muskegan, Mich.
John A. Webb, Baltimore, Md.
J. D. Wells, Cincinnati, O.
T. T. Whiting, Great Barrington, Mass.
B. O. Wilson, Boston, Mass.
Wm. Wright, Jr., New York.

MINUTES

OF THE

TWENTIETH ANNUAL MEETING.

First Session.—Tuesday, Sept. 3d, 1872.

THE American Pharmaceutical Association, at its Twentieth Annual Meeting, assembled at the Central Rink, Euclid Avenue, corner of Monument Square, in the City of Cleveland, Ohio, on the afternoon of Tuesday, September 3d, 1872. President Enno Sander in the chair. John M. Maisch, Secretary.

The President called the meeting to order at 3½ o'clock. The roll being called by the Secretary, fifty-six members were found to be present.

THE PRESIDENT.—More than a quorum is present. The next business in order is to appoint a Committee on Credentials, for which I will name Messrs. J. Faris Moore, of Baltimore; Robert J. Brown, of Leavenworth, and W. J. M. Gordon, of Cincinnati.

THE SECRETARY.—Credentials have been presented from the Massachusetts College, the College of Pharmacy of the City of New York, Alumni Association of the College of Pharmacy of New York, Newark Pharmaceutical Society, New Jersey Pharmaceutical Society [I will remark that the credentials of the delegation from the Philadelphia College of Pharmacy have not yet arrived. Prof. Procter comes by boat and will not arrive before this evening. The majority of the delegates, I believe, are present], the Alumni Association of the Philadelphia College, the Maryland College of Pharmacy, the Columbia Pharmaceutical Association, Cincinnati College of Pharmacy, Louisville College of Pharmacy, Tennessee College of Pharmacy, Pharmaceutical Association of Alleghany County, Saginaw Valley Pharmaceutical Association, the Kansas College of Pharmacy, the Chicago College of Phar-

macy, the Ontario College of Pharmacy, and the Alumni Association of the Massachusetts College of Pharmacy.

The Committee on Credentials retired.

THE PRESIDENT.—I regret to have to announce that none of the members of the Executive Committee are present. Dr. Garrigues will act in their absence, and now read the names of the applicants for membership.

Dr. Garrigues read a list of applicants for membership, together with their vouchers, when it was found that several applications were indorsed by only one member.

Dr. Squibb moved that the applications be received, except those who have been vouched for by only one member. The motion was amended by Mr. Eberle, by adding the words, "Unless some member present can vouch for them." The President suggested that the applicants may probably be known to some of the members present. The names not properly indorsed according to the by-laws were called again, and additional vouchers being obtained, the motion and amendment were withdrawn, when Dr. Garrigues reported the following applications for membership, the applicants having complied with all the requirements of the by-laws.

Connecticut.

William B. Haight, Stamford.
L. J. Munson, Waterbury.
John R. Pitt, Jr., Middletown.

District of Columbia.

William T. Baldus, Washington.

Iowa.

Parker P. Ink, Washington.

Louisiana.

A. Gamotis, New Orleans.

Maryland.

Alfred N. Marion, Baltimore.

Massachusetts.

George E. Callender, Lee.
Edgar Leonard Patch, Boston.

Michigan.

Jacob Jesson, Pentwater.

New Jersey.

Morris Roberts, Jersey City.

New York.

John Alsdorf, Tarrytown, Westchester Co.
Henry A. Cassebeer, Jr., New York.
George E. Cook, Port Jervis.
Albert C. Dung, New York.
Charles Eimer, "
George Gill, M.D., "
George H. Haas, Rochester.
Henry Imhof, New York.
J. I. Lamberton, Saratoga Springs.
G. Frederick Lehlbach, New York.
B. V. B. Livingston, Williamsburg.
George Y. Miller, Luzerne, Warren Co.
A. J. W. Nietsch, New York.
Le Roy S. Oatman, Angola, Erie Co.
William C. Searles, Gloverville.
Peter I. Spenzer, New York.
Philip A. White, "

Ohio.
C. Hohly, Toledo.
Alfred Mayell, Cleveland.
C. P. Vaupel, "

Pennsylvania.
C. L. Ahl, Alleghany City.
Edward D. Chipman, Philadelphia.
Daniel S. Fox, "
Louis Koch, "
Frederick B. Power, "
John B. Raser, Reading.
William Weber, Philadelphia.

Tennessee.
George W. Albers, Knoxville.
William G. Ewing, Nashville.

Vermont.
George A. Crossman, Brandon.
C. H. Warren, Springfield.

West Virginia.
E. L. Boggs, Charleston.

The President appointed Messrs. Joseph L. Lemberger, of Lebanon, Pa., and Albert B. Clark, Jr., Galesburg, Ill., tellers, who reported the unanimous election of the candidates.

Professor Moore, on behalf of the Committee on Credentials, presented the following report:

TO THE PRESIDENT AND MEMBERS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION:

The Committee on Credentials would respectfully report that they have examined the credentials of the following Associations, viz.:

Massachusetts College of Pharmacy.—Joel S. Orne, Samuel M. Colcord, Robert R. Kent, James E Blake, I. Bartlett Patten.

College of Pharmacy of the City of New York.—Paul Balluff, William Neergard, M.D., Moses L. M. Peixotto, David Hays, P. Wendover Bedford.

Maryland College of Pharmacy.—Alpheus P. Sharp, John F. Hancock, Jesse N. Potts, John N. Webb, J. Faris Moore, Phar.D.

Cincinnati College of Pharmacy.—John F. Judge, Theodore L. A. Greve, Hermann F. Reum, James M. Ayres, William J. M. Gordon.

Louisville College of Pharmacy.—Emil Scheffer, William G. Schmidt, Thomas E. Jenkins, M.D., Peter P. Sutton, C. Lewis Diehl.

Chicago College of Pharmacy.—Albert E. Ebert, Theodore H. Patterson, Thomas N. Jamieson, Newton Pierpoint, Albert B. Clark, Jr.

Kansas College of Pharmacy.—George Leis, Edward T. Porter, Robert Parham, Robert J. Brown, Joseph Harrop.

Ontario College of Pharmacy.—William Saunders, Henry J. Rose.

Tennessee College of Pharmacy.—Benjamin Lillard.

New Jersey Pharmaceutical Association.—Robert W. Gardner, George E. Carmen, Charles C. Wells, Omar Barton, Charles W. Badger.

Newark Pharmaceutical Association.—Edward P. Nichols, M.D., Ransford W. Vandervort, Andrew M. Mills, M.D., Edward F. Kelly, John B. Lee.

Columbia Pharmaceutical Association.—George M. Howard, M.D., John T. Eagert, Joseph W. Nairn, William M. McLeod, Daniel P. Hickling, Phar.D.

Alleghany County Pharmaceutical Association.—Joseph F. Neely, Frederick H. Eggers, David Davis, Jr., Joseph F. Caldwell, William H. Brill.

Saginaw Valley Pharmaceutical Association.—Samuel S. Garrigues, Phar.D., Leander Simoneau, Job F. Street, George Aldridge, William Moll.

Alumni Association Massachusetts College of Pharmacy.—Charles A. Tufts, M.D., James F. Babcock, Charles B. R. Hazeltine, John C. Lowd, Linus Dana Drury.

Alumni Association College of Pharmacy of the City of New York.—Thomas Starr, Frederick S. Jones, Thomas F. Main, Hampden Osborne, Lucian M. Rice.

Alumni Association Philadelphia College of Pharmacy.—William McIntyre, Charles L. Eberle, George W. Kennedy, William F. Roche, Thomas D. McElhenie.

There are delegates present from the St. Louis and the Philadelphia Colleges of Pharmacy, but their credentials are not yet in the hands of the committee.

Respectfully,

J. FARIS MOORE,
W. J. M. GORDON,
ROBERT J. BROWN,
Committee on Credentials.

On motion of Mr. Judge, the report was accepted and the committee continued.

The roll, as amended by the names of the delegates present and of the newly elected members, was again called, when eighty members answered to their names.

The reports of committees were called for, and the following were handed in, and laid upon the table for future action:

Report of the Executive Committee, with the Report of the Permanent Secretary.

Report of the Committee on the Drug Market.

Report of the Committee on Legislation.

THE SECRETARY.—I have not heard from the Committee on the Progress of Pharmacy, and I have received no report from them; the chairman is not present.

THE PRESIDENT.—I had a letter from Mr. Jenkins, stating that the report would be presented at the meeting.

PROF. DIEHL.—I would state that, on Saturday, Mr. Jenkins informed me that he wished to hand me a letter to the Executive Committee; but what the object was, or the nature of the letter, I don't know. He failed to leave the letter with me.

THE PRESIDENT.—Professor Jenkins informed me that the report would be ready, but on account of the German members refusing or neglecting to act, it would contain matter only from the French, English and American periodicals.

Regarding the report of the Committee on Papers and Queries, the Secretary stated that the Chairman, Mr. Doliber, was prevented from attending this meeting, and that the report was in the hands of Professor Procter, on his way to Cleveland.

No report was received from the Committee on Unofficinal Formulas, and Mr. Remington stated that Mr. Steer, the Chairman of the Committee on Adulterations and Sophistications, had informed him that he would be unable to make a report this year.

The President stated that the efforts of the Committee on Liquor Dealers' License of Apothecaries had been unsuccessful, and that the chairman would report verbally.

Mr. Ebert gave information that the Chairman of the Committee on Infringement of Stamp Tax had prepared a report, which would probably arrive to-day by mail.

The Secretary stated that the Chairman of the Committee to Consider and Report on the Arrangements for the Meeting in 1876, Professor Parrish, before starting on his Western tour, had informed him that the report was ready, and had been sent to the other members of the committee, from whom it would probably be received.

PROF. MOORE.—On behalf of the Committee on Liquor Dealers' License, I have to report that nothing could be accomplished at the last session of Congress. I made several visits to Washington, one in connection with Mr. Dalrymple, and the Commissioner of Internal Revenue and the Chairmen of the Congressional Committees advised that this matter be taken up early in the next session of Congress. The Commissioner could do nothing without an act of Congress, and Congress was so much engaged in other matters, it being the short session, as it is termed, they would not take the matter up and consider it. We could not get it before the committee at all, but they advised that the Association present the matter before Congress at an early period of the next Congress, and they had no doubt something would be done. I would suggest that this committee be continued, or another committee appointed, so the matter may be brought to the attention of Congress at an early period of the next session.

THE PRESIDENT.—Better continue the committee.

PROF. MOORE.—I don't know about that, unless the committee were here. It is very difficult to get even a committee to unite in what they want. If we could have a committee appointed of members present at this meeting, they could consult before the adjournment of the Association, and tell better what

we wanted to ask Congress to do. I found there were five members on the committee, and they wanted Congress to do five different things.

THE PRESIDENT.—There are three members of the committee present at this meeting.

The Secretary read the reports of the Executive Committee and of the Permanent Secretary as follows:

The Executive Committee respectfully report that the Nineteenth Volume of the Proceedings was issued early in March last, about two weeks earlier than the year previous, notwithstanding the fact that we did not commence printing for several weeks later than in the preceding year; this was occasioned by the sickness of the Chairman of the Committee on Progress of Pharmacy. This result speaks well for the industry of our excellent Secretary, who is charged with the duty of editing our volume.

The applications which have thus far been received have been regularly filed and will be reported for election at the proper time. It would be a great advantage to the Association, and much facilitate the labor of our worthy Treasurer, if all applications were accompanied with the initiation fee, annual dues, and price of certificate; indeed it seems almost unnecessary to mention this subject, but for the loose manner in which applications have been made and received in former years. All applicants who fail to receive the Proceedings will readily understand the reason if they have not made their settlement with the Treasurer for the charges.

During the past year the committee have heard of the decease of but five of our members, and if any others have died, their friends in our Association will confer a favor by informing the committee in time to introduce such notice into this report.

R. J. TAYLOR, of Newport, R. I., died December 21st, 1871. Robert J. Taylor has been nearly forty years in business, well known and highly esteemed for his moral worth and professional standing. He had been a member of our Association since 1859.

WILLIAM P. WATSON, of Williamsburg, N. Y., died in the 40th year of his age. He was a native of Philadelphia, and was educated to the business by Prof. Wm. Procter, Jr., of Philadelphia. He was graduated by the Philadelphia College of Pharmacy in 1853.

As a pharmacist he stood well in the esteem of his brethren, and conducted his business with credit to himself. His death took place in Brooklyn some months since. He connected himself with our Association in 1860.

JAMES EVESSON BRIGHT, of Worcester, Mass., died March 7th, 1872, of consumption, in the 40th year of his age. He was a native of Dublin, Ireland, and studied under the direction of Dr. G. F. Lyman. He emigrated to our country in 1860, and attended lectures in the Philadelphia College of Pharmacy in 1868.

He was loyal as a citizen, zealous in the discharge of his professional duties, devoted to his Christian profession, and affectionate as a husband.

J. C. EVERSON was killed by being thrown from his carriage last March,

while riding with a friend. He was esteemed by those acquainted with him as a man, and bore a good reputation in his profession. He had been connected with our Association since 1868.

ROBT. J. DAVIES, of Brooklyn, N. Y., died July 9th, 1872, at Sacramento, Cal., whither he had gone to seek the restoration of his health. He had long conducted a flourishing business in Brooklyn, N. Y., and was quite well known in his profession. His store was characterized by the fulness and appropriateness of its appointments, and the neatness with which it was kept. His membership in our Association dates from 1858.

Your chairman would desire to return his thanks for the constant courtesy and assistance he has received from all the officers of the Association with whom his official duties have brought him in contact.

THOS. S. WIEGAND, Chairman.

REPORT OF THE PERMANENT SECRETARY.

TO THE CHAIRMAN OF THE EXECUTIVE COMMITTEE:

The last volume of the Proceedings at our Nineteenth Annual Meeting was distributed early in March, about the same period at which the former much smaller publications were issued. It might have appeared fully two months sooner, if all the reports and papers which were directed to be printed had been handed to the Executive Committee in a finished condition.

Twenty-seven members, of eight of whom the residence could not be ascertained, were dropped from the roll, in accordance with the by-laws, and nineteen members had handed in their resignations.

The stock of Proceedings stored at the Philadelphia College of Pharmacy, exclusive of the copies at this meeting, is as follows:

1851, . . .	356	in paper covers.				
1852, . . .	116	"	"			
1853, . . .	116	"	"			
1854, . . .				out of print.		
1855, . . .	125	"	"			
1856, . . .				out of print.		
1857, . . .	238	"	"	24	bound.	
1858, . . .	72	"	"	7	"	152 loose.
1859, . . .	—			48	"	
1860, . . .	—			222	"	
1862, . . .	—			297	"	
1863, . . .	—			277	"	
1864, . . .	191	"	"	132	"	
1865, . . .	158	"	"	37	"	
1866, . . .	77	"	"	81	"	
1867, . . .	155	"	"	98	"	
1868, . . .	66	"	"	149	"	
1869, . . .	110	"	"	172	"	
1870, . . .	118	"	"	63	"	
1871, . . .	93	"	"	79	"	

The New Amsterdam Fire Insurance Company, in which the property of

the Association has been insured for a number of years past, suspended last fall in consequence of heavy losses sustained by the Chicago conflagration. This failure escaped the notice of the Secretary, until the time for the renewal of the insurance approached, when an insurance for $2500, at an annual premium of $15, was effected with the German Fire Insurance Company of Philadelphia, the Franklin Fire Insurance Company, in which the College building is insured, declining to take this additional risk.

For the use of the Committee on the Progress of Pharmacy, several journals were imported in addition to those ordered the year previous, at a cost of $59.70, of which sum $13 are contained in the Secretary's expenses as stated below, while for the balance of $46.70 an order was drawn upon the Treasurer in favor of the importer. At the meeting in 1870, when the Association directed the purchase of scientific journals for the purpose named, no definite sum was named in the resolution, although $50 and $75 were mentioned in the discussion. The Association receives now either in exchange or by purchase all the important pharmaceutical and some chemical periodicals published in Great Britain, Belgium, France, Germany, Austria, and Russia. There are still some left, which, though not quite as indispensable as those received now, would be very desirable, on account of frequently containing matters of interest to the pharmacial profession; if the condition of the treasury would admit an increased expenditure for this purpose, this could not but result to the advantage of the Association.

The Secretary would also suggest the more copious illustration of our printed Proceedings by woodcuts or engravings; this appears to be particularly desirable for the report on the progress of pharmacy, in which apparatus and contrivances are frequently described or merely mentioned, the construction or purpose of which could be much better explained by a suitable engraving. If the chairman of this committee was to designate the illustration and inform the Secretary where it can be found, or furnish him with a sketch, the object could be easily accomplished without delaying the publication of the Proceedings.

Including the sum of $46.53, which as stated in last year's report was not accounted for in 1871, and the sum of $13 for the purchase of journals as stated above, the incidental expenses of the Permanent Secretary during the year just closed, amounted to the sum of $424.68, as follows:

Postage Stamps,	$171 08
Freight and Express Charges,	130 90
Packing Boxes,	15 00
Packing Paper, Twine, Nails, &c.,	8 20
Engraving for Proceedings, 1871,	24 00
Foreign Journals,	13 00
Fire Insurance,	15 00
Stationery,	1 25
Expenses for delivering Proceedings in Philadelphia,	4 00
" " collecting in 1871,	2 00
Circulars, Letter Heads, Envelopes,	45 25
Total,	$424 68

From which sum the above $46.53 and $18 should be deducted, .		$59 53
Leaving the net incidental expenses during the past year, . .		$365 15
At the last meeting the Secretary accounted for expenses amounting to	$168 68	
Add to this amount the above	46 53	
Which makes a total for the year 1871 of . . .		$215 21
Showing an increase of expenses during the last year of . .		$149 94

This increase is due to the size and weight of last year's Proceedings, and in consequence thereof, the increased outlay for postage and freight.

The postage in 1871, including that for the same year contained in the above $46.53, amounted to . .	$91 37	
The postage in 1871 above accounted for, . . .	171 08	
Increase for the year, ...		$80 71
The freight in 1871, that in the above bill, for the same year included, ...	$69 90	
The freight in 1871, above accounted for, . . .	130 90	
Increase for the year, ...		$61 00
Total increase for these two items, ...		$141 71
Leaving, against the above, ...		149 94
Total increase of all other incidentals, amounting to, . .		$8 23
Of which sum packing boxes come in with $15,—$9.12 (for 1871),		5 88
And all incidentals other than for distribution of Proceedings, with		$2 35

To the yearly statement rendered above, there should be added $5 for a bill which was accidentally omitted in the Secretary's account with the Treasurer.

The certificates of honorary membership were issued shortly after the adjournment of the last meeting, and their reception has since been acknowledged by all but two of the gentlemen elected.

In justice to himself, and to the members of the American Pharmaceutical Association, the Secretary feels compelled to bring to their notice a grave charge brought against him by the *Pharmaceutische Zeitung*, published at Bunzlau, as the organ of the North German Apothecaries' Union. In its issue of May 11th last, it says in relation to the translation of the address of that Society:*

"In der englischen Uebersetzung dieses Schreibens sind einige Stellen desselben, welche den amerikanischen Apothekern wehe thun konnten, gemildert, andere weggelassen. So sind die 'traurigen' Erfahrungen mit 'un-

* See Proceedings, 1871, p. 78.

favorable,' 'unsere einzige Hoffnung' mit 'our hope,' übersetzt, und statt, 'unsere Regierungen vor dem grossen Fehler diese einzuführen, bewahren werden,' nur gesagt, 'may prevent our governments from its introduction.'"

Translation.—In the English translation of this document, several passages of it, which might have given pain to the American Apothecaries, have been moderated, others left out. Thus, the "sad" experience has been translated "unfavorable," "our only hope," with "our hope," and instead of "may prevent our governments from the great error of introducing it," it is merely said, "may prevent our governments from its introduction."

The criticized passage refers to the plea against removing the restrictions from the practice of Pharmacy in Germany, which has been extensively advocated there for some years past, and touches a question in which American pharmacists have no interest, and for which they feel no sympathy. For these reasons, an *intentional* omission or alteration is out of the question; moreover, none of the documents presented to this Association in a foreign language have ever been translated *verbally*, whether they were afterwards ordered to be published or not. The sentence to which objection was taken is as follows, the verbal translation being italicized: "Our *only* hope rests in the recognization of this, and we trust that the (unfavorable) *sad* experience of those countries in which the unrestricted practice of Pharmacy exists, may prevent our governments from *the great error of* its introduction."

Under date of May 14th, the Secretary has received from John H. Packard, M.D., Secretary of the College of Physicians, the attached copy of a preamble and resolutions adopted by the College of Physicians at a stated meeting held May 1st, 1872, with the request to bring them before the American Pharmaceutical Association at the earliest opportunity. The Secretary would add, that he has received information of their adoption by the American Medical Association at their meeting held in the city of Philadelphia in the month of May last.

All of which is respectfully submitted.

JOHN M. MAISCH,
Permanent Secretary.

Preamble and resolutions passed by the College of Physicians of Philadelphia, May 1, 1872.

"*Whereas*, Cases of accidental poisoning, and of the internal administration of medicines intended only for external use, are so frequent; and *whereas*, every possible safeguard should be employed to prevent such accidents; therefore,

"*Resolved*, By the College of Physicians of Philadelphia, that it is recommended to all druggists to place all external remedies in bottles, not only colored so as to appeal to the eye, but also rough upon one side, so that by the sense of touch no mistake shall be possible even in the dark.

"*Resolved*, That all bottles containing poisons should not only be labelled

'poison,' but also with another label indicating the most efficient and convenient antidote.

"*Resolved*, That a copy of these resolutions be presented to the American Medical Association, to the College of Pharmacy of Philadelphia, and to the American Pharmaceutical Association, and that their assistance be asked in bringing about so desirable a reform."

JOHN H. PACKARD, M.D.,
Secretary of the College of Physicians of Philadelphia.

1928 Spruce Street, May 14th, 1872.

The appointment of the Committee on Nominations being next in order, the following gentlemen were designated by the respective delegations as members of said committee.

Massachusetts College of Pharmacy,	Joel S. Orne.
College of Pharmacy of the City of New York,	Paul Balluff.
Maryland College of Pharmacy,	J. Faris Moore.
Cincinnati College of Pharmacy,	J. F. Judge.
Louisville College of Pharmacy,	C. L. Diehl.
Chicago College of Pharmacy,	T. N. Jamieson.
Kansas College of Pharmacy,	R. J. Brown.
Ontario College of Pharmacy,	H. J. Rose.
Tennessee College of Pharmacy,	B. Lillard.
New Jersey Pharmaceutical Association,	R. W. Gardner.
Newark Pharmaceutical Association,	R. W. Vandervort.
Columbia Pharmaceutical Association,	D. P. Hickling.
Pharmaceutical Association of Alleghany Co.,	W. H. Brill.
Saginaw Valley Pharmaceutical Association,	L. Simoneau.
Alumni Association Massachusetts College of Pharmacy,	C. A. Tufts.
" " New York " "	T. Starr.
" " Philadelphia " "	C. L. Eberle.

DR. SQUIBB.—In order to make the committee complete, I move, although the credentials of two colleges have not been received, that their delegates present be authorized to nominate.

The motion of Dr. Squibb was agreed to, and Mr. Joseph P. Remington was appointed to represent the Philadelphia College of Pharmacy, and Professor Enno Sander the St. Louis College of Pharmacy.

The President appointed the following five members from the Association at large, as members of the Nominating Committee: Messrs. George W. Sloane, Indianapolis, Ind.; Henry J. Menninger, Raleigh, N. C.; Alfred S. Lane, Rochester, N. Y.; Louis J. Merkel, Cleveland, O.; and Charles A. Heinitsh, Lancaster, Pa.

Mr. Shinn, from the Business Committee, presented the report of this committee in relation to an amendment to the by-laws, presented at the last meeting, and to be acted on at the first session of the present one, and requested the Secretary to read the resolution referring to it. The resolution is as follows.*

The Business Committee presented the following resolution, offered by Professor Parrish, which was agreed to:

Resolved, That the Business Committee be requested to consider the expediency of a Board of Direction, which shall meet simultaneously with the Association, and shall transact all its business, including the election of members, subject to the approval of the Association, the proposed Board of Direction to be composed of the officers of the Association, the Business Committee, the Committee on Papers and Queries, and the Executive Committee; the committee to report at the first session of the next meeting of this Association.

Mr. Shinn then read the Report of the Business Committee, as follows:

The officers of the Association, with the members of the Executive Committee, the members of the Committee on Papers and Queries, and of the Business Committee, shall together constitute the Council of this Association.

It shall be the duty of the Council to arrange all matters of business, previous to the opening of the session at which it is to be presented for consideration. The reception and consideration of such business shall be the first in order after the reading of the minutes. And it shall be deemed out of order to offer any resolution or proposition of a business character at any other time.

No proposition or motion concerning the business of the Association shall be entertained by the President until it has been submitted to the Council, unless it pertains to the question before the meeting. All matters referred to the Council shall be considered and reported to the Association as early as practicable, with recommendation of such action as it may deem proper. The reports of all standing committees shall be presented to the Council, and a proper time assigned by it for presentation to the Association, with recommendations based thereon.

All applications for membership shall be referred to the Council, and its report on the same shall precede a ballot for election.

The Council shall report, previous to the fifth session, upon the time and place for holding the next annual meeting.

The Council shall have full power to manage the business of the Association during the interim between the annual meetings, and shall choose its own officers.

---

* See pp. 113 and 119 of Proceedings for 1871.

The changes required to make the by-laws consistent with the duties assigned the Council will be—

Chapter 5, *Article* 7, strike out the words, "reports of standing committees and all," also strike out all after the word "authors."

Chapter 5, *Article* 10, third line, read "Secretary," instead of "Committee on Papers and Queries."

Chapter 5, *Article* 11, add to the last line, "under the direction of the Council."

Chapter 7, *Article* 2, drop Sections 6, 8, and 9.

Chapter 7, *Article* 3, drop Sections 5, 6, and 7.

Chapter 7, *Article* 4, read "the Council," instead of "Business Committee."

Chapter 7, *Article* 5, change "Executive Committee" to "Council."

No other provisions really interfere with the work of the Council, although some could be made to, but as the committees are a part of the Council, all can run smoothly without further changes. As the Council are supposed to present business at the opening of the sessions, all will come in its proper place, and each committee will take care of its part by having it previously arranged.

The object of having applications for membership referred to Council is that one election may suffice for a day, and if any improper applications are presented, the officers are supposed to know it, and the name can be dropped quietly.

The object sought is to have as little discussion in open meeting upon the details of business as is practicable, devoting our time to more profitable work.

Respectfully submitted,

E. H. SARGENT,
Chairman Business Committee.

A motion by Mr. Brown that the recommendations of the committee be adopted was seconded.

MR. SHINN.—I think that some discussion is advisable on this subject. It is, in fact, enlarging the Business Committee, which perhaps is a good movement, but it may, probably, cut off some discussion, which the Association would not like. I was not present at the last meeting when the proposition was made, but its intention was that no matters of a purely business character, if that can be defined, should occupy too much of the attention of the Association, and we might have more time for the discussion of papers and queries and scientific matters. It is a radical change in our by-laws, and ought to be considered well before being adopted.

Professor Moore moved to amend, that the subject be laid upon the table until to-morrow morning at 11 o'clock. The

amendment was accepted by the original mover, and then adopted.

The President read his Annual Address.

TO THE AMERICAN PHARMACEUTICAL ASSOCIATION.

GENTLEMEN: Before I shall enter upon the fulfilment of my duty, required by the Constitution, and address you, at this Twentieth Annual Meeting, on topics relating to the condition, prosperity, and prospects of our Association, permit me first to sincerely thank you for the distinguished honor you have considered me worthy of by electing me to this high position, and favorably accept my humble apology for all the shortcomings which my administration may have been guilty of in spite of the able assistance and kind co-operation of my efficient fellow-officers, to whom I am greatly indebted for advice and indulgence.

Convinced and satisfied that a "sound financial basis" would be the best foundation for our institution to build upon, with the abundance of intellectual resources from all branches of our art and science, you wisely increased the yearly contribution by members from three to five dollars, and obtained the satisfactory result already, in the short space of two years; that, while previously, the deficiencies in our treasury which had been created by the increased demand upon it for necessary and unavoidable expenses occasioned by the increased size and number of our publications and other exigencies, had to be met by voluntary contributions from zealous and generous members, in order to let the balance appear on the right side in the yearly report of our worthy and untiring, but distressed Treasurer, we now have had abundant means from our regular income, not only to pay our current expenses, which have been larger last year than ever before, but also to liquidate a debt of honor to two worthy officers, our Treasurer and Secretary, who had devoted their time and energy successfully to the benefit of our Association, for a small and entirely insufficient remuneration. And while then it was predicted by some that our membership would decrease and our progress be hemmed by the increase of the yearly dues, you have had the satisfaction to observe the contrary effect, a due reward to your energy.

The list of members contains now 920 names of active and 24 honorary members, of which 20 are of foreign countries. Of the former, 199 names have been added to the list within the last two years—and no doubt the present meeting will largely augment this number—against 178 during 1868 and 1869, when the dues were still at the old rate. We have lost 19 members by resignation, 5 by death, to whom the Executive Committee will pay the customary tribute, and 27 have been dropped from the list. With all this, and the increased expenses of last year, our worthy Treasurer has to-day on hand about the same amount of money as there was shown by his Report at the last meeting.

The President, by the advice of the Secretary and Treasurer, has availed himself of the privilege granted to him by a resolution carried at the last meeting, and remitted the dues to five deserving but indigent members, who

are thankful to the Association for this act, and have declared their readiness to pay up their back dues as soon as their ameliorated circumstances will permit.

The creation of life membership has not yet worked as beneficially as was anticipated. Thus far, but one member has availed himself of the privilege. In regard to those members who have as yet refused to relinquish their life-memberships obtained by the stipulations of the old Constitution, we have no power to act, but it is confidently expected that they will reconsider their resolution, provided their pecuniary circumstances will permit it. I take the liberty of repeating, in this respect, the recommendations of a former president, Mr. E. H. Sargent, "to allow those members who have paid dues for ten years to commute for all further dues by the payment at one time of a sum that shall, with the dues already paid, be equal to the dues for life-membership." It is believed that such a compensation would be acceptable to most of them, and but a just contribution, on their part, for the increased value they now obtain by the acceptance of our publications.

I also join in his recommendation of "funding or setting apart the initiation and certificate fees, which, received but once from each member, constitute an incidental revenue, and no ordinary expense shall be provided for out of such receipts." It appears from the balance in our treasury, that we have not to depend any more upon these moneys for our current expenses, and it would be well to create a fund as early as possible, as the experience of other societies has shown that such nucleus has frequently given an opportunity to generous members to contribute voluntarily towards its increase.

Great credit is due to the Executive Committee for the early publication of the largest volume of the Proceedings which ever has been laid before the members. It contains 605 pages, and, with the Decennial Index of 115 pages, in all 720 pages, full of interest and scientific and practical knowledge.

It should be believed that the Pharmacists of the United States would consider it their personal interest to join an Association which, besides offering other important advantages, distributes yearly among its members such treasure of knowledge for the small contribution of five dollars.

The report of the Committee on the Progress of Pharmacy will be, as usual, comprehensive of the latest discoveries and scientific investigations in pharmacy and its collateral branches, but information received from the Chairman states that it "will confine itself to the English, French and American periodicals, from the fact that the German-reading members of the committee declined to act."

This remark suggests in itself the propriety of recalling to the attention of the Association the recommendations, which have been made yearly by the several chairmen of this committee since 1866, recommendations which have been concurred in, to a great extent, by the presidents elected during that period, one of whom remarks in his address: "The wide range covered by this committee, including science, art, and literature, involving a vast amount of labor to prepare a comprehensive and detailed report, leads me to suggest that the work be classified, if possible, and that a separate portion be assigned to each member of the committee, instead of, as at present, expecting all the

work to be performed by the chairman; otherwise I fear that we shall soon be unable to find a chairman for the committee." While fully indorsing the views of my predecessor, Mr. E. H. Sargent, I take into consideration also the large amount of time which is necessarily involved in the critical perusal of scientific works and periodicals for the purpose of extracting and reproducing their contents, and but rarely allotted to the hard-working and constantly-engaged pharmacist, and the quiet and undisturbed leisure almost absolutely required for the success of scientific pursuits, but which is never enjoyed by any one of our profession in active business.

There are mainly three branches of knowledge which constitute the art or science of Pharmacy: Practical Pharmacy, Pharmacognosy, and Pharmaceutical Chemistry. In our Colleges of Pharmacy we carefully distinguish these three different studies, and endeavor to select, for their respective instruction, the best representative, in order to give to our students the amplest opportunity for acquiring as perfect a knowledge of their profession as they may be able to obtain. Now it appears to me that the report on the Progress of Pharmacy, as it has been rendered during the last ten years, constitutes a manual from which the educated pharmacist may procure his guidance for the continuation of those studies and for the acquirement of further knowledge of the steadily developing natural sciences. With these views in support of my position, and with the full acknowledgment of the care you have always shown in the selection of your committees, I suggest the appointment of a permanent Committee on the Progress of Pharmacy, to be composed of three members, who shall be selected from the Professors of one of the Colleges of Pharmacy in our large Eastern cities. The general advantages of such an appointment seem to me obvious.

Almost all chairmen of this committee who have happened to reside in the West have been complaining of the irregular delivery of the foreign journals, which caused such annoyances as to induce you, on several occasions, to adopt measures and resolutions for its regulation. But we are, nevertheless, still dependent in this matter on the mail and express agents, over whom we have no control, and from whose negligence and carelessness the members of the committee would suffer the more the farther the distances would be of their respective residences, if it should be decided to divide the work of the committee among its members, and circulate the journals. I am confident that the proposition to assign the different portions of the report to the members by the languages will, after some reflection, be abandoned by you, for it establishes no benefit whatever, and increases, instead of diminishing, the amount of labor. There must be always, in the journals of the same and different languages, a number of repetitions, either in full or by extract, which logically would appear in each report from each member, and would confer the duty upon the chairman, who would have to arrange, finally, the report scientifically, to cancel a great many items, and thus extinguish, not only the result of the studies of others, but also increase his own labor unpleasantly and unnecessarily.

By dividing the different branches of the report among the members of the committee, all unnecessary labor will be avoided, and by selecting the com-

mittee from one Eastern city, the occurrence of all the annoyances experienced heretofore will be entirely prevented.

Our science has kept developing so rapidly, and extends over so large a field, that it would be unjust to expect from every member to be perfect in all its branches, and take active part in all new investigations and discoveries, even if his time would permit it, but the professors of the colleges should be at the head of their respective departments, thoroughly posted, and therefore best adapted to the work of compiling the report, especially as their duties require them to pursue those studies the result of which we want to obtain in the report.

Other and more potent reasons in support of my suggestions, have been communicated to you, a few years ago, by Frederick Hoffmann, Phar.D., of New York, and I beg leave to refer to the "concluding remarks" of his report on the Progress of Pharmacy in 1869, confident that his eloquent and very elaborate demand for a division of labor in this committee, will induce you to pay some attention to the foregoing remarks.

Another proposition has been suggested in regard to this matter, which, I believe, deserves also your consideration, and its apparent importance may be my excuse for bringing it here to your notice. It is the appointment of a Permanent Reporter, who, in place of the committee, shall render annually to the Association a report on the Progress of Pharmacy, to be published in the Proceedings. But in order to compensate him for his arduous work, he shall be authorized to publish, under the auspices of the Association, a "Journal on the Progress of Pharmacy," which shall contain in full everything new and of importance in Pharmacy and its collateral branches. From this Journal the annual report would have to be compiled, and it is confidently expected that such an enterprise would be largely patronized by all the pharmacists, and yield a handsome revenue to its editor, without being of any expense to the Association.

The inconvenience of appointing the Committee on Specimens shortly before the expiration of the second session of the meeting, as required by the by-laws, was already felt at the last meeting, in consequence of which the committee was appointed by resolution during the first session. Would it not be advisable to make this change legal, by simply transferring Section 8 of Article III, Chapter VII, to Article II of the same chapter, before or after its Section 8?

The Business Committee filed, at the last meeting, their intention of amending the by-laws in regard to the transaction of business, and have presented to you already a draft of the contemplated changes, the importance of which requires your prompt and undivided attention.

With the rapid increase of our Association by the election of nearly 100 members every year, the attendance at our meetings will increase likewise, and it will be only the natural result of events that a larger number of members will henceforth desire to participate in the discussion of business as well as scientific questions, which may require more time than we can afford to devote to our meetings, unless we do organize a thoroughly expeditious system for the transaction of business, which will economize time and still give an

opportunity to every member to be heard. Strict adherence to these rules should be our aim; and there is no doubt that the beneficial influence of such self-denying restriction will soon be noticed by every one, and especially by those members who participate most frequently in the discussions, and thus evince the greatest interest in the affairs and the welfare of our Society.

It is with great satisfaction and delight that I avail myself of the privilege which is offered to me at this session of conveying to you the important and satisfactory intelligence that our worthy and efficient Permanent Secretary, who, two years ago, yielded to the representations and remonstrances of his fellow-officers and members, and assented to retain his position, for our benefit, and in spite of the peremptory pressure of his private business, has succeeded in making such arrangements in his personal affairs as to enable him to withdraw his pending resignation of the position, which he has filled with so much credit for the last seven years.

If the Committee on Papers and Queries will not be ready to present at this meeting answers to all the queries accepted at the last, it is not owing to the negligence of its chairman, who has been exceedingly industrious in keeping the members aware of their accepted obligations. We may, therefore, expect a great many replies and valuable additions of investigations upon various subjects, to our next volume of Proceedings.

The Committee on Adulterations and Sophistications has not met with any flagrant case of deception, and consequently preferred not to render any report.

The Committee on Liquor Dealers' License of Apothecaries has not been able to accomplish the purpose for which it has been appointed; but, as they have been advised to bring the matter before next Congress as early as possible, I take the liberty of suggesting the continuance of the same committee for another year, with the request to push the matter to a timely and satisfactory result.

The Committee on Infringement of Stamp Tax has important excuses for the want of attention to its objects, but their proposition to petition Congress for the repeal of this onerous law, so unjust in its execution, is well worthy of your early attention.

The Committee on the Drug Market will present to you a full report on the condition of the Drug Market, as may be expected from its able and industrious chairman.

It may be truly said that all legislation in the different States having a tendency towards the advancement of the standard of Pharmacy and the protection of the public from ignorant vendors of medicines and impostors, are mainly due to the exertions of our Association. The progress is slow, for the people are already overburdened with special laws, and are afraid to touch a matter of which they are almost entirely incapable of forming any correct idea, or politicians take hold of some ill-conceived regulations, and try to turn them to their own advantage, which is equivalent to public plunder. The latest successes of your agitation have been the passage of "An Act to Regulate the Practice of Pharmacy and the Sale of Poisons in the City and County of New York," in the Legislature of the State of New York, which

is now in full operation, to the satisfaction of the profession in that city; and the prevention of a fraudulent law in the State of Pennsylvania, which would have been an incubus, instead of a benefit to the profession in that State. Let us continue to use our influence for the ultimate enactment of sound laws in all the different States, and, with their assistance, we shall succeed in elevating the standard of our profession, purge it of charlatans and ignominious characters, and give it the importance it ought to command before the people.

The Committee on Unofficinal Formulas will present its report, as usual, by giving the composition of some medicines which are compounded by some pharmacist or manufacturing chemist, and used by physicians who have been pressed into service. There are hundreds of such compounds flooding the market, much to the annoyance of the pharmacist, who is compelled, in self-defence, to add to the already innumerable list new compounds, for the consumption of which he must interest his friends, if he does not want to pay the profit due to his labor to the manufacturers East or West, who send out their drummers to interest for their preparations the easily captivated physician. Would it not be time for the Association to take up this matter and try to regulate it.

I respectfully invite your attention to a paper on this subject, in answer to Query 45, which will be read at this meeting, and recommend the early consideration of its excellent propositions.

At our last meeting a Standing Committee on the Pharmacopœia was appointed to represent the interest of Pharmacy at the Congress in 1880. This committee has no special duties, and it occurs to me that it might be advantageously intrusted with the duties of the Committee of Unofficinal Formulas, in such manner as to require of its members, who are chosen by the representatives of the different colleges, to furnish annually a report of the unofficinal formulas used and popular in their several sections of the country, to the chairman of the committee, who then will compile from them his general report.

Thus the committee will have constantly before them the object of their appointment, and never lose sight of the necessity of a full representation of pharmacists, and the necessary changes in the Pharmacopœia, required by the interest of Pharmacy, at the Decennial Congress on the Pharmacopœia.

In concluding these remarks, I cannot resist congratulating you upon the many and important results you have obtained by steadily pursuing the objects of your Association. Not only that you embrace among your number all the pharmaceutical intelligence and knowledge of the country, but you have successfully raised the standard of the pharmaceutical profession, and inspired ambition into the souls of the students of Pharmacy for higher aims than vending drugs.

ENNO SANDER.

ST. LOUIS, September, 1872.

The Business Committee moved that the President's address be referred to a committee of three, to consider and report upon

the suggestions contained in it. At the suggestion of Dr. Squibb, the report of the Permanent Secretary was included in the resolution, and the motion then agreed to.

The President appointed Dr. E. R. Squibb, William S. Thompson, and William Saunders on this committee. Dr. Squibb desired to be excused, and after some discussion the committee was constituted as follows: William Saunders, William S. Thompson, and Joel S. Orne.

The President announced that to-morrow morning he would appoint Messrs. H. J. Menninger, E. Scheffer and C. Hohly to serve on the Committee on Specimens.

On motion, the Association adjourned until to-morrow morning at 9 o'clock.

Second Session.— Wednesday Morning, September 4th.

Pursuant to adjournment, the Association met, President Sander in the chair.

The minutes of the first session were read and approved.

The report of the Treasurer being called for, the Business Committee suggested, that according to Chapter VII, Article 3, of the by-laws, the first business in order was the report of the Nominating Committee.

THE PRESIDENT.—According to Section 8, of Article II, of Chapter VII, the report of the Treasurer should have been read yesterday. It is better for some reasons that the Treasurer should not report until the Second Session. It has, however, been the custom to read it before the report of the Committee on Nominations, and it is, therefore, in accordance with the usage of the Association to call for the Treasurer's report.

MR. SHINN.—The Business Committee only suggests that custom had better give way to the by-laws, as they were drawn up for the furtherance of the business of the Association.

THE PRESIDENT.—I hope the Business Committee will leave those reasons and report an amendment to the by-laws accordingly.

DR. SQUIBB.—It does come in after the election of officers under the new by-laws. The present by-laws were altered, so the reports of Standing Committees now come in in this session after the new officers take their seats, and the report of the Treasurer will come in with the reports of Standing Committees under the new order of things. Alterations make constant con-

fusion, and I don't see how we can avoid it as long as we keep tinkering at the by-laws.

Mr. Joel S. Orne, acting as Chairman of the Nominating Committee, read the following nominations for officers for the ensuing year:

For President.

ALBERT E. EBERT,	Chicago.

For Vice-Presidents.

SAMUEL S. GARRIGUES,	East Saginaw, Mich.
EDWARD P. NICHOLS,	Newark, N. J.
HENRY C. GAYLORD,	Cleveland, O.

Executive Committee.

THOMAS S. WIEGAND, Chairman,	Philadelphia.
GEORGE LEIS,	Lawrence, Kansas.
CHARLES L. EBERLE,	Philadelphia.
HENRY J. MENNINGER,	Raleigh, N. C.
JOHN M. MAISCH, Permanent Secretary, *ex-officio*,	Philadelphia.

Committee on Progress of Pharmacy.

LOUIS DOHME, Chairman,	Baltimore, Md.
JOSEPH P. REMINGTON,	Philadelphia.
HENRY W. SCHAEFFER,	St. Louis.
CHARLES B. SMITH, Local Secretary, *ex-officio*,	Newark, N. J.

Committee on Drug Market.

P. WENDOVER BEDFORD, Chairman,	New York.
WILLIAM H. BROWN,	Baltimore, Md.
WILLIAM P. KEFFER,	New Orleans, La.
WILLIAM H. BRILL,	Pittsburg, Pa.
WILLIAM S. MERRELL,	Cincinnati, O.

Committee on Papers and Queries.

C. LEWIS DIEHL, Chairman,	Louisville, Ky.
HENRY N. RITTENHOUSE,	Philadelphia.
JOHN F. HANCOCK,	Baltimore.

Business Committee.

PAUL BALLUFF, Chairman,	New York.
CHARLES H. DALRYMPLE,	Morristown, N. J.
WILLIAM H. CRAWFORD,	St. Louis.

Pending the motion of accepting the report, Mr. McIntyre moved to amend by nominating Dr. E. P. Nichols, of Newark, N. J., as a second candidate for President.

DR. SQUIBB.—I think that is hardly competent according to our by-laws. We are now about to accept this report. The question of adopting it will come afterwards. In accepting this report, we must accept it or reject it, as a whole. If we accept it, we accept the report of our committee appointed for a given purpose, which they have performed and now report. If we refuse to accept it, wholly or in part, and send it back, it is competent for us to do so and ask them to consider this other nomination. This will very materially interfere with our order of business, and we shall have to hurry it up at a later day or hour. I am opposed to this; I think we have a competent committee; I think they have done their duty better than we can do it, and if we undertake to interfere with their action, we shall be likely to use up a great deal of time, and I doubt whether we have the means to improve their nomination.

The report was accepted, and on motion of Dr. Squibb it was resolved to take one ballot for the adoption of the whole report. The President appointed Messrs. John F. Hancock, of Baltimore, and Charles L. Eberle, of Philadelphia, tellers.

Before the ballot was taken, Mr. Menninger moved that the President be directed to cast one affirmative ballot for the report.

DR. SQUIBB.—I object to that; we are evidently not unanimous upon this report of the committee, and therefore I should like to see a fair expression. Let those gentlemen who are not satisfied with this report as it is, deposit their negative ballots. I should be sorry on this occasion to take a different course.

MR. MENNINGER.—In that view of the case, I withdraw my motion.

The ballot being proceeded with, Dr. S. S. Garrigues, in the name of the Executive Committee, presented the following names of candidates for membership, the applicants having complied with all the rules:

Henry G. Benson, Washington, D. C.
A. S. Devendorf, Galesburg, Ill.
Ferdinand Hassencamp, Baltimore, Md.
Frank R. Hadley, New Bedford, Mass.
William H. Keeler, Saginaw City, Mich.
William K. Foltz, Ashland, Ohio.
Frank P. Hill, Elyria, Ohio.
Charles Huston, Columbus, Ohio.
Charles Ludlow, Springfield, "
Joseph Matt, Columbus, "
John S. Roberts " "
Harrison S. Lutz, Alleghany City, Pa.
Eugene L. Lambert, Nashville, Tenn.
J. C. Wharton, " "

Before a ballot had been ordered, the Committee on Credentials announced the reception of the credentials from the following bodies:

Philadelphia College of Pharmacy.—Professor Wm. Procter, Jr., Professor J. M. Maisch, Wilson H. Pile, M.D., Joseph P. Remington, James T. Shinn.

Alumni Associatian of the Maryland College of Pharmacy.—Charles E. Dohme, John Henry Hancock, Julius C. Fahlen, John Sohl, William S. Thompson.

Georgetown College School of Pharmacy, Washington, D. C.—Daniel P. Hickling, Phar.D.

Objections were raised in regard to the admissibility of the latter delegation. After a lengthy discussion, Dr. Hickling moved, and was seconded by Mr. Eberle, that the subject be made the special order for to-morrow morning at 11 o'clock. The appointment of a committee was advocated by Professors Judge and Moore, and accepted by Professor Hickling as an amendment to his motion. The motion as amended was then adopted, and it was decided that the committee consist of one member from each delegation, and five members appointed from the Association at large.

The report of the Committee on Credentials, except so far as it related to the Georgetown College School of Pharmacy, was then accepted, and the following committee appointed in accordance with the above resolution:

Massachusetts College of Pharmacy,	I. B. Patten.
College of Pharmacy of the City of New York,	Wm. Neergaard, M.D.
Philadelphia College of Pharmacy,	W. Procter, Jr., Phar.D.
Maryland College of Pharmacy,	J. Faris Moore, Phar.D.
Cincinnati " "	J. F. Judge.
Louisville " "	Emil Scheffer.
Chicago " "	Thos. N. Jamieson.
St. Louis " "	F. X. Crawley.
Kansas " "	Robert J. Brown.
Ontario " "	Henry J. Rose.
Tennessee " "	Benjamin Lillard.
New Jersey Pharmaceutical Association,	Chas. W. Badger.
Newark " "	E. P. Nichols, M.D.
Columbia " "	G. M. Howard, M.D.
Alleghany County " "	F. H. Eggers.
Saginaw Valley " "	S. S. Garrigues, Phar.D.
Alumni Association, Mass. College of Pharmacy,	Chas. A. Tufts, M.D.
" New York " "	H. Osborne.
" Philadelphia " "	William McIntyre.
" Maryland " "	Wm. S. Thompson.

The President appointed from the Association at large, Messrs. George W. Sloane, Indianapolis; H. J. Menninger, Raleigh, N. C.; Alfred S. Lane, Rochester, N. Y.; Louis J. Merkel, Cleveland, Ohio, and Charles A. Heinitsh, Lancaster, Pa. It was urged that Dr. Hickling be made a member of the committee, and the President, accepting the suggestion, appointed that gentleman in place of Mr. Heinitsh.

The tellers appointed to collect, sort, and count the votes on the adoption of the report of the Nominating Committee, reported that 86 votes had been cast in favor of the adoption and nine in opposition; accordingly all the nominees were declared duly elected.

The Chair appointed Professors Procter and Moore a committee to conduct the President elect to the Chair, which being done, the retiring presiding officer introduced Mr. Albert E. Ebert to the meeting, who, before taking the Chair, said:

GENTLEMEN OF THE ASSOCIATION: For this unexpected honor accept my sincere thanks. I hope that you will bear with my shortcomings, and I promise that I will make every effort to follow out the noble precepts of my predecessors, and thereby add my mite to the usefulness of the Association, and in its work of elevating our profession, for which purpose we have assembled in this beautiful City of the Lakes. To those who meet with us for the first time on this occasion, I extend the hand of fraternal welcome, and hope that they may become so interested in the good work, that we may frequently have the pleasure of meeting them at the future meetings of the Association.

On motion of Mr. Wright, a vote of thanks was passed to the retiring President and officers for the able manner in which they conducted the affairs of the Association.

The Executive Committee again brought forward the names of the applicants for membership (see page 46) previously reported, when the President appointed Messrs Remington and Jamieson, tellers, who subsequently reported the unanimous election of the candidates.

The Treasurer, Dr. Charles A. Tufts, read his annual report, as follows:

TO THE OFFICERS AND MEMBERS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION:

Agreeably to the requirements of the Constitution, I herewith present the report of this office for the past year. I have paid all the bills against the

Association coming to my knowledge, and there is a balance in my hands of $733.41. I have received a larger amount of funds than last year, but owing to the unusual size of our volume of Proceedings, and the larger number printed for the increase of members, our expenses are much larger than for any year of the Association. We have published, in connection with the volume, an Index of the preceding volumes, and I learn the cost of the volume for 1871 is $5.50. As the dues are $5.00, each volume delivered to members has cost more than the Association received. Had it not been for the amount in our treasury at the commencement of the year, your Treasurer must have obtained funds elsewhere to have liquidated the debts of the Association. This extra expenditure will not have to be again incurred for several years, and I see no reason why the Association cannot now advance prosperously on its mission of good.

Complaints have been made to the Treasurer of the advancement of the yearly dues, but rarely, I find, from those who have paid promptly; these members receive their Proceedings as soon as published, and from their perusal are satisfied that the only policy for the Association to pursue, if it would maintain its standing, is to make the yearly dues sufficient to meet the yearly liabilities, and keep a sufficient sum on hand to meet contingencies.

The officers have withheld the Proceedings from all who are in arrears, and those who do not pay cannot with reason complain if their Proceedings are not received. Previous to dispensing the Proceedings, the Secretary confers with the Treasurer, who furnishes him with a list of all who are in arrears, and all but the members on that list are at once supplied with the Proceedings. This course will be continued until otherwise ordered by the Association. The members can be well assured, it is much more agreeable for the officers to dispense the books than to withhold them.

Five years since, the Treasurer was ordered to send circulars to each member of the Association, for them to decide whether or no they would resign their life membership. There are still some twenty members from whom he has received no answer, although year after year he has requested them to report to him their decision. The convenient season does not as yet seem to have arrived for them. It would afford the Treasurer much pleasure if at another meeting of the Association he could report answers *pro* or *con* from these members. Sufficient time it would seem has elapsed for them to decide this matter, and whatever failings they may have, they cannot be accused, if this is an indication, of being hasty in judgment.

I would again remind the members of the necessity to report to the Treasurer any changes in residence, also changes in their business street and number. It will avoid much expense to the Association, and save the Permanent Secretary and Treasurer much trouble if the members would so act. More than fifty letters have been returned from the post-office this year, and this would not have occurred had the members been willing to bestow a little attention to this matter.

It is now twenty years since our Association commenced its existence; it numbered nine members, and the total receipts the first year were $124. At this time we have 920 members, residing in 45 different jurisdictions, and our receipts are $3571.19; truly the little one has become a thousand. Seven of

the nine original members of the Association are still living, and one, he has been rarely, if ever absent, is with us at this meeting.* Those members must take pride in reflecting on the grand results resulting from their labors. We of the profession owe a debt of gratitude to those early pioneers, which I trust we shall never forget. If the past twenty years has accomplished so much, what may not the next twenty years accomplish? Some of our members will live to see those results; we can well imagine how pleasant the sight will be to those who will witness them.

The Treasurer does not suggest any change in our financial department or deem it expedient to make any at this meeting. The reforms inaugurated two years since have not yet been fully tested; during the coming year an opportunity will be found fully to do so, and if any action is needed, he will report it at our next meeting.

My official intercourse with the members the past year has been of the most pleasant character, without a single exception, and it gives me much pleasure to testify to the almost uniform courtesy I have received while I have acted as your Treasurer.

I again sincerely thank those members in our larger cities for their assistance so freely given; their services have been invaluable to the Association and myself.

BOSTON MEDICAL LIBRARY ASSOCIATION.

CHARLES A. TUFTS,
Treasurer.

Statement of the Receipts and Disbursements of the American Pharmaceutical Association for the year ending Sept. 3d, 1872.

RECEIPTS.

1871.			
Sept. 12th.	To balance on hand,		$1209 87
1872.			
Sept. 3d.	" amount received for Contributions,		3336 00
	" " " from sale of Certificates,		183 50
	" " " " " Proceedings,		51 69
			$4781 06

DISBURSEMENTS.

1871.			
Sept. 15.	No. 1. Telegram to Europe, Expenses,		$24 40
" "	" 2. John M. Maisch, Expenses,		46 53
Oct. 4.	" 3. James H. Slade, Phonographic Report,		182 00
" 23.	" 4. Thomas S. Wiegand, Index,		100 00
" "	" 5. John M. Maisch, Expenses,		65 00
Nov. 1.	" 6. Charles A. Tufts, Expenses,		98 12
" 12.	" 7. Merrihew & Sons, Expenses,		19 50

* Prof. William Procter, Jr.

1872.				
Mar. 18.	No. 8.	John M. Maisch, Expenses,		$200 00
Apr. 8.	" 9.	Thomas S. Wiegand, Chairman Ex. Com.,		1000 00
" "	" 10.	I. Kohler, Expenses,		34 40
" 22.	" 11.	" Expenses,		12 80
May 20.	" 12.	Thomas S. Wiegand, Chairman Ex. Com.,		200 00
" "	" 13.	John M. Maisch, Expenses,		124 90
July 12.	" 14.	Thomas S. Wiegand, Chairman Ex. Com.,		200 00
" 25.	" 15.	" " " "		200 00
Aug. 7.	" 16.	" " " "		200 00
" 13.	" 17.	" " " "		200 00
" 20.	" 18.	" " " "		100 00
" 23.	" 19.	" " " "		32 92
" 25.	" 20.	John M. Maisch, Expenses,		53 25
" "	" 21.	" "		500 00
" 28.	" 22.	Chas. A. Tufts, Expenses,		300 00
" 29.	" 23.	" "		39 34
" 30.	" 24.	" Postage,		64 99
				$4047 65
Sept. 3.	By balance cash on hand to date,			733 41
				$4781 06

E. E. All of which is respectfully submitted.

CHARLES A. TUFTS,
Treasurer.

On motion of Professor Moore, the report was accepted and referred to a committee of three to audit the Treasurer's accounts. The President appointed Messrs. W. J. M. Gordon, of Cincinnati, Thos. H. Patterson, of Chicago, and Jas. S. Robinson, of Memphis, the Auditing Committee.

The hour of eleven having arrived, the President announced the special order of business to be the consideration of the proposed amendment to the by-laws, establishing a Council. The reading of the amendment being called for, it was read by the Secretary (see page 36), and the discussion opened.

DR. SQUIBB.—In discussing this important change that we are about to adopt, or refuse to adopt, I for one should be very glad to hear from some gentleman who has made it a subject of especial study, and knows what the advantages, or supposed advantages are, which we are to gain from it. I am very sorry that the mover is not here. Mr. Edward Parrish, of Philadelphia, I think, brought forward the subject at the last meeting, and made some remarks which many here will remember, and can probably reproduce to the

Association. There are doubtless very good reasons why we should in some way or other try to prevent the time of the Association from being taken up by such discussions as this, namely, the business, the parliamentary parts of the machinery of the Association. If we can adopt any good plan whereby the time may be saved, we shall be doing great service to the scientific work of the Association. If there is any gentleman present, who is sufficiently well informed upon this subject to give us the points, either real or supposed, for favoring such a change as this, I should be glad to hear him, and I know there are others who desire the same information. The Chairman of the Business Committee, who drew this up at the order of the Association, is not a very warm advocate of this change, although he has done the Association the service of working it out, and putting it in form for our discussion; neither he nor the mover are here, and therefore, we must depend upon some gentleman who is well informed upon the advantages that are to be gained by this change.

MR. WRIGHT.—Would it not be well that all alterations of the constitution and by-laws, after some little explanation, should be ordered to be printed and distributed to every member, and not be discussed until the next meeting? It will save a great deal of time in the discussion.

MR. SHINN.—I think before going into the question of the alteration of the by-laws, it will be well to decide whether the change is advisable at all. That is the main point now for the Association to arrive at, whether we are going to obtain any advantage by this additional machinery or not.

PROF. PROCTER.—There seem to be two main points. One is to secure a more thorough oversight over the applications for membership, so they shall not be merely handed in to the Chairman of the Executive Committee and voted upon by the members without their having any information as to the character and fitness of the candidates. The next is that the business of the meeting should not be interfered with by so many points coming in. Now, the question is, whether if this is carried out as suggested, it will not be that we all come several hundred miles to hear a report of this outside body, instead of the Association acting for itself.

PROF. MOORE.—That will be the result to the Association. The success of all associations in this country depends upon their democratic features. Every man has a say, and it is that that takes him to the meetings. The very moment you make a council to transact all the business, that moment you destroy the American Pharmaceutical Association, and with a slight amendment to that, giving the Council the power to receive and publish the papers that are presented, we can all stay at home, let them attend to the business, and read the Proceedings. That will be the result. No man is going to come one, two, or three hundred miles to the Association and listen to a report of ten, fifteen, or twenty men who manage the affairs of the Association. I am very much opposed to any such alteration. I would sooner take a little more time; sooner see a little confusion, or stay a day longer to attend to the business, and if we devote more time to business, and less to visiting the places where we meet, I think we can afford a little discussion

occasionally. It gives life and spirit to the meeting. If there is no further discussion, I move that the subject be indefinitely postponed.

The motion to indefinitely postpone was agreed to without a dissenting vote.

Prof. Procter read the report of the Committee on Papers and Queries, action on which was for the present deferred.

The President read the following invitation, which on motion was received and accepted, with the thanks of the Association:

The members of the American Pharmaceutical Association here assembled, their friends, the druggists of the city and vicinity, and their families, are invited to participate in an excursion on the lake, to-morrow (Thursday) afternoon. The boat will leave the dock at 2 o'clock, and return at 6 o'clock. Good music will be in attendance, and a good time is anticipated.

There will also be music in the Rink this evening, and it is hoped members will be present with their ladies, to meet their Cleveland friends.

By order of

COMMITTEE ON ENTERTAINMENT.

The report of the Committee on the Progress of Pharmacy being called for, and no letter having been received in regard to it, the Business Committee moved that the Secretary be ordered to telegraph to the Chairman to ascertain whether his report is ready. The motion was agreed to.

The Secretary read a considerable portion of the report on the Drug Market, which was accepted and referred.

The report of the Committee to Consider the Arrangements for the Meeting in 1876 was next called for.

THE SECRETARY.—I would state that Mr. Parrish informed me, before he left for the West, that the report was ready, and he had sent it to Mr. Colcord. I understood, subsequently, that it would be returned by Mr. Colcord to Mr. Parrish, and handed to Prof. Procter.

PROF. PROCTER.—I have not received it. I have a letter from Mr. Parrish this morning, but I don't think it included anything but an answer to a query.

The Auditing Committee reported as follows:

TO THE OFFICERS AND MEMBERS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION:

The committee appointed to audit the Treasurer's account, report that they have examined the books carefully, and find them correct. The books are

perfect in neatness and accuracy, and the Association is extremely fortunate in obtaining the services of so faithful an officer.

W. J. M. GORDON,
T. H. PATTERSON,
JAMES S. ROBINSON.

The report was, on motion, accepted, and the committee discharged.

The President appointed the following Committee on Specimens: H. J. Menninger, Raleigh, N. C.; E. Scheffer, Louisville; C. Hohly, Toledo, O.; Wm. McIntyre, Philadelphia; and M. L. M. Peixotto, New York.

PROF. PROCTER.—It is a portion of the duty of the chairman of the Committee on Queries to supervise the receipt and bringing forward before the meeting of the queries that were given to members last year. Acting for the chairman, who is not present, I will state that, of the 73 queries given out to the members in St. Louis, 48 have not been heard from at all; 16, it has been stated, will not be replied to; and 9 papers have been received. This looks very badly, but as members may have papers in their possession and not yet offered them to the acting chairman of the committee, I make these remarks with a view of soliciting those papers or information of their readiness, so that we may know what to do.

MR. BROWN.—In regard to what Prof. Procter has stated, I fear the same thing will result from the ones that have been proposed here this morning. I think that many queries presented are a little above the standard of the average druggist, in this country, and that the amount of labor necessary to be devoted to them rather keeps the members who have accepted them away. In other words, they fail to report, and in consequence of that they stay away from the meetings. I repeat this, because I feel myself incompetent to answer many of the queries which are propounded, and because I know there are a number of others who have the same feeling.

MR. BALLUFF.—I think there is too large a number of queries propounded. If we should reduce the number, and let several members accept the same question, it might be better attended to, and different ideas would be brought forward.

DR. SQUIBB.—One word in regard to the number of queries that are brought forward. I think it has been generally the policy of the committee to bring forward a larger number than were expected to be answered, for the purpose of giving a choice. A number of these queries pass from year to year unanswered, not because they are unimportant, but because they don't suit the tastes of those to whom they are presented. We all know, a person, in accepting a query, will answer it better if he has some special or some individual interest in the subject he undertakes to answer, and this large number of queries is presented, not with the expectation that every one should be

answered. It is unfair for us not to remember that this is the case, because it looks like a very meagre report on a large basis. The fact is, as Mr. Brown says, that a number of the queries read this morning are rather complicated, and would take a good deal of labor to answer them properly. But the object is to present the queries, so if any one is interested in a special subject, he may accept that query, and reply to it. We all know the value of voluntary work, and this is to make it more voluntary on the part of those who accept the queries. Although we have, as yet, heard of but 9, there are probably others here; but even if we only get 9 out of 72, it is all we have a right to expect of so busy a profession as Pharmacy. I speak for myself and many others, whose occupations are of such a character that they must take up those things which are in their track, without going into collateral studies, which will require more time than many of us can afford. Therefore I am glad to see there are nine papers to be read, although it is a little discouraging, perhaps, to some. It is not an evidence that those who have not brought papers have not worked, but it is an evidence that they have had no query presented which was in the line of their occupation. I am glad to see a great number of subjects presented. The more subjects, the greater the number, the more replies we shall have. The answers will be in proportion to the number presented, although it may only be a small percentage of the whole.

MR. REMINGTON.—It seems to me we ought to be more careful about accepting queries. If our words are good for anything, they ought to be good when we put our names down to answer a query. I think we ought to be careful, before we put our names down, that we see our way clear to answer the query. It is rather discouraging to see so many queries unanswered. I am glad to see that the queries propounded at this meeting for answer at the next, are of a more practical character, and I think Mr. Brown will be better satisfied with them, and with a little more care on our part to only accept them when we see our way clear to answer them, I think we will have a better report at the next meeting.

PROF. PROCTER.—I would like to say, in continuance of what was said, to gentlemen who have volunteer papers relating to entirely new subjects, that the chairman would like very much to have the titles of them, so he can call them up when the proper time comes.

THE PRESIDENT.—The Committee on Queries get up a large number of queries, and it has been my habit, when chairman of that committee, to go to some of the members and ask them to put down their names. Now, I think it is not objectionable if they put down their names and yet do not answer the queries where it is not possible for them to do so. We have members among us who will work out their queries, but I see no reason to blame the members for putting down their names, because, if the Committee on Queries make a report to this Association, and, passing it around, were to find no one willing to accept a query, they would be apt to think, and rightly, that their large quantity of work was unappreciated. I think if that was the case, a chairman for that committee could not be found after a few years.

MR. GORDON.—I appreciate what the President has said. I accepted, at

the last meeting, a query, somewhat under protest, because I did not see how I could very well work it out, and so stated, although I said I would if I could; and that is one of the queries which I shall be unable to answer at this meeting. It was one that required a good deal of time. I have another that required time to make a proper report, both of which will be unanswered at this meeting, although, if they are continued, I shall endeavor to answer them at the next.

MR. REMINGTON.—I only indulged in my remarks with a view of strengthening a little the cause, and making us a little more careful. I still think it very bad that out of 72 queries only 9 are heard from, and my only object in speaking was to make us a little more careful. I think it is better to have 25, and have them all answered, than to have 72, and only have 9 answered.

PROF. PROCTER.—There are 46 not heard from, and 11 received. I am afraid that, in getting up and offering these figures, the members have not understood it was not a criticism of the members. It was only done to call out the papers which, I presumed, were in the members' pockets, they not knowing where to offer them. I do not feel discouraged. I think there must be more papers.

Mr. Shinn, from the Special Committee on Photographic Album, in presenting the Album, made a verbal report.

MR. SHINN.—There is a Special Committee on Photographs, which will report progress. They have bought an Album to hold the faces of the members, and would request that all those who have not forwarded them would hand them in to myself as soon as possible so they can be arranged.

MR. BALLUFF.—Where is that Album to be kept?

MR. SHINN.—It is to be the property of the Association, and the Secretary is to carry it around with him, and as it grows it will be enlarged in volume.

MR. PROCTER.—Some months ago a letter was received by Prof. Parrish, from Henry B. Brady, of Newcastle, England, the President of the British Conference, who was in attendance at the St. Louis meeting last year, which letter was accompanied by this package, an album of photographs, containing some very well-executed pictures of the old pharmacists of England, the Presidents of the pharmaceutical society and conferences, and many other pharmacists. Mr. Brady sends it as an evidence of his kindly feeling towards the American pharmacists, and towards this Association, feeling that when here he was treated kindly, and he hopes the Association will accept it as an evidence of good feeling on his part, and on the part of the British pharmacists. I may state that it was sent to Prof. Parrish with a request that it should be brought before the Association by himself, Prof. Maisch, and myself, and Prof. Parrish not being here, we have volunteered to do it.

DR. SQUIBB.—I move that the compliment paid us by Mr. Brady be acknowledged by the Secretary, with the thanks of the Association. Mr. Brady came among us a stranger, and in his late address to the British Con-

ference, which has just adjourned, has given us credit for a great deal of hospitality and kindly feeling towards himself. He very properly and very modestly, on his part, attributes the hospitality and the kindness he received to the fact that he was a representative of the British Conference, and it is a mark, to my mind, that he was influenced by the highest motives which we can claim, in that, he does not claim for himself our hospitality, to himself as a man, but to him as a representative of the British Conference. I therefore make this motion with great cheerfulness, that we now reply to the kindly feeling on his part, as an Association, and thank him for his beautiful gift, for it is a very beautiful and a very valuable one. The longer it remains in our records with our own photographic record, the more valuable it will become to us. As these men, like our own members, are gradually passing away, this will become to us, in the future, a very valuable memento of our fraternal recognition by the British Conference. I move that the American Pharmaceutical Association heartily thank Mr. Brady for his kind remembrance of the Association, in sending the photographic album, which is received through the hands of Prof. Procter and others.

The motion of Dr. Squibb was duly seconded, and carried unanimously.

The Secretary exhibited charts and sketches of the weather reports of the United States.

THE SECRETARY.—I have received, directed to the American Pharmaceutical Association, some documents from the office of the Chief Signal Officer of the United States, stationed at Washington. It may perhaps be interesting to the members to look at them, and see the way the weather reports are made up. The reports sent comprise the work of one day. There are three reports made and sketched out on the charts, one at 7.35 A.M., one at 4.35 P.M., and one at 11.35 P.M.

DR. SQUIBB.—I move that this contribution from the Signal Office at Washington be accepted, and the thanks of the Association be sent by the Secretary to the Chief Signal Officer. I also wish to include in the motion, that this be reproduced in our Proceedings. I think we all would like to know how these weather reports are made up, from the signal stations at present established, and which are increasing in number, new ones being continually established, and rendered more perfect. Their present number is sufficient to give us an intelligible idea of the mode in which the work is done; if these charts be reproduced, therefore, I include in the motion, the authorization of the Secretary and Executive Committee, to have sketches made for the Proceedings of these reports that are forwarded to us so kindly, with a brief note of explanation of the way in which these observations are made. It will add to our general stock of information, and will certainly be useful to us who desire to learn how this matter is conducted. We must bear in mind that upon the popularization of this mode, it depends for its success, because, if it can be so popularized as to make such a strain upon the members

of Congress and the General Government, as to facilitate the operations of the Signal Bureau, we shall in a few years have so perfect a system of observation as to be useful to us not only in American commerce, but to the world at large. There are obstructions thrown in the way which the executive part of the government can overcome. They are too much dependent upon the telegraph officers. These companies sometimes refuse to transmit the reports. If they get crowded with business, they say to the officers that their reports cannot be transmitted then, and in such cases the work of the bureau must fail. This has been growing worse within the past few months. We frequently see appended to the report of the day, that such and such reports from various sections of the country have not been forwarded. This, I understand, is on account of the crowding of the telegraph offices, so that all the other business takes precedence, and the reports are not telegraphed at the proper time, and thus become useless. They must be sent at the time the observations are made and recorded at that time. Hence it all depends upon the companies who have charge of the telegraph. That is one of the arguments used, and one of the strongest arguments I have seen used in favor of the General Government buying the telegraph lines, using them as they are now used to a certain extent in Great Britain under government supervision. I think if we can aid in popularizing this function of the Signal Bureau in making these weather reports, we shall be doing a good work, and aiding ourselves as well as the community at large.

DR. MENNINGER.—I would suggest that Dr. Squibb embody in his resolution an additional one, giving expression to the opinion of this convention of the value of these meteorological observations to the scientific men in the country, inasmuch as there is an opposition in Congress to the continuance of this bureau, and the expenditures incurred by it. I think it would have some weight. There was an opposition to the appropriation at the last session.

DR. SQUIBB.—There will be to any appropriations by certain parties who are opposed to such movements, but they are not of such weight as to be recognized.

DR. MENNINGER.—I suggest that the Association might, by resolution, recognize the services of the bureau. I don't wish to make a motion. I only make the suggestion.

DR. SQUIBB.—My object in occupying so much time, was to have it known and recognized in our Association, that we might add our mite to the influence which ought to be spread abroad in regard to this matter.

DR. MENNINGER.—There can be no doubt that the Doctor has not occupied one moment too much on this subject. It is one which ought to arrest the attention of every thinking man in the country. An immense deal of good has been done already, not only to commerce, but to agriculture, and it behooves all men engaged in scientific pursuits to encourage this matter. We can hardly appreciate, without looking at the subject more fully, what an immense amount of good has been done through these observations.

DR. SQUIBB.—I would like to mention another fact which is being

broached, and which, I have reason to think, is near the heart of the chief signal officer. He is a very energetic man, and one of the instances of the right man in the right place. It is to establish two signal stations at sea. The idea is to anchor two vessels about 800 miles from the Southern and Northern coasts, so they shall be about equidistant from and divide the space between the West Indies and the Northern Sea into two divisions. These vessels are proposed to act as signal stations, and be connected with the land by cable. Then the circuit of observation will be very much more complete. The chief cause of the slight inaccuracies we observe is because the view of the chief signal officer is cut off seaward. He knows nothing of the approach of storms, and the variations of wind and temperature, &c., that occur off the seaboard. He has, from his position at Washington, only a little more than half the horizon at his command, and this sweep is not sufficient to complete his view. He is now quietly, as far as my knowledge goes, very quietly, and modestly, and slowly, trying to educate the country up to the value of these reports, and to the necessity for extending the stations seaward, in order to complete what will then be a very thorough system of observation. With these two vessels anchored at sea, as sources of relief to wrecked vessels, as depots for pilots, and to answer the purposes of light-houses, and for furnishing observations to vessels, giving them their latitude and longitude, and for various purposes that will occur to the mind at once, the signal service will be complete. It will be expensive (there is the trouble), as these once established may be the precursors of others; but these two would be of great importance. I have no doubt, in a few years, the common sense of the community will sustain him in his attempts.

The motion of Dr. Squibb was passed unanimously.

On motion, it was resolved that, when we adjourn, we adjourn to meet again at three o'clock, P.M.

The members present then went in a body to the exhibition, which had been placed in the spacious gallery surrounding the large hall of the Central Rink, on three sides. The Committee on Specimens, Dr. H. J. Menninger, chairman, called the attention of the meeting to the most prominent objects, which were carefully examined.

The meeting then adjourned.

Third Session.— Wednesday Afternoon, September 4th.

The meeting was called to order at 3½ o'clock by President Ebert.

The minutes of the second session were read and approved.

The report of the Committee on Legislation was read by the Secretary, and, on motion, accepted and referred.

THE SECRETARY.—On my way here to this meeting, I have learned of the passage of a pharmaceutical act, in the State of South Carolina. I am not familiar with its provisions, but I think authority might be given the committee to embody that law in the report.

The committee was, on motion, empowered to publish the law passed in South Carolina.

Dr. Squibb made the following motion:

WHEREAS, Some twenty of the older members, after having been repeatedly notified, have failed to respond to the action of the Association in regard to relinquishing, or declining to relinquish, their rights to life-membership; and,

WHEREAS, The subject of life-membership cannot be finally disposed of while such members refuse to respond to the notification by the officers; therefore,

Resolved, That all members who fail to notify the Treasurer that they decline to relinquish their right to life-membership before the first day of May next, are declared hereby to have relinquished the said rights.

The motion was carried.

The reading of replies to queries was then taken up.

Query 1, On the best Process for assaying Aconite Root, accepted by L. M. Rice, was not replied to. Mr. Rice desired to have the subject discontinued, which was granted.

When Query 2, On a Process for preparing Aloin uniform in its Results, was called up, the following was read from a letter by Prof. Prescott:

I regret to have to ask to be excused from reply to Query No. 2, which I accepted; and I will not stand in the way of its acceptance by some one else by asking to have it continued to me another year. I intended to make some experiments—pharmaceutical and physiological—on aloin, but my visit abroad will probably prevent. However, I had scarcely hoped to improve on the recent reports of W. A. Tilden, Flückiger, and Weselsky, in the chemical and pharmaceutical relations of aloin.

No reply was received to Query No. 3.

Query 4, On Working Formulas for Artificial Mineral Waters, referred to Mr. Moith, received no reply.

PROF. PROCTER.—I have a letter from Mr. Moith in which he states his difficulties. Mr. Moith states, that in his paper of last year he considered that he had gone as far as he could in the direction that the Association asked him, but that he had made up his mind to try to do more, when an application was made to him to prepare some 20 or 25 formulas for artificial mineral waters, and he accepted the offer and was paid for it. He commenced working for the Association, and it occurred to him he would hardly be acting in good faith to the person he had given these formulas, to contribute them to the Association Proceedings. He applied to the individual for whom he worked and received a negative answer, and declines to answer the question on that account.

No replies were received to Queries Nos. 5, 6, 7, 8, and 9. In relation to the latter, Professor Procter read a portion of a letter from Mr. Fredigke, in which it was stated that an analysis of the berries and root of Phytolacca decandra had been commenced last February, but would probably not be finished to report at this meeting. On motion, the subject was continued to the member for another year.

DR. SQUIBB.—I desire to offer a few remarks in regard to the fifth query, relating to Cantharidate of Potassa, which was not answered. It will be remembered that the cantharidate of potassa was proposed by Dragendorff, I think, some years ago. I presented to the Association last year, a paper on a preparation of fluid extract of cantharidin, which is, as I stated in the paper, the cantharidate of potassa. That is to say, the cantharidin in powder is exhausted by a slightly alkaline solution, the alkali used being potassa. The trials I made with it proved that it was a very active vesicant. Within the past week or ten days, I received from Mr. Sargent notice that Dr. Johnson, of Chicago, had tried the fluid extract of cantharides (the new, not the old), and had found it ineffective. He had applied it to the surface of a patient for five hours without producing vesication, and had applied the ceratum cantharidis afterwards, and this had produced very prompt vesication. This rendered me uneasy, although I had stated in the paper that the cantharidate of potassa had been untried, and I undertook a series of experiments with the fluid extract from which Mr. Sargent had been supplied, and which had been tried by so able a man as Dr. Johnson, of Chicago. I applied a small blister of this fluid extract to my own arm, and at the end of five hours there was no noticeable effect. It had itched and smarted (the itching preceding the smarting), but on removing it, no evidences of vesication or redness were seen. I concluded it was ineffective from some cause, and went to work to find it out. On inspecting the bottles, as they had been standing some time, I found a waxy scum which had separated from the preparation and formed a thin layer on the surface, and I concluded that I had probably taken a portion of that scum from the top instead of taking the solution of cantharidate of potassa which was below. I therefore shook the vial and took another portion, a fractional part of a drop, and applied it by the directions, moistening a piece

of newspaper and putting it on the arm, not in the same place. This went through the same itching and smarting effect, but at the end of five hours no appearance of vesication nor any reddening of the skin was perceptible. This happened in the evening and I did not observe it again until the following morning, when I found a blister on the spot to which I had applied it, and considerable reddening of the first spot. This did not entirely satisfy me, but I had no longer time at my disposal to repeat the process. I am, therefore, so far as these two little experiments go, inclined to think the cantharidate of potassa is not so prompt as the ceratum. That it does produce a blister I have no doubt. I have not heard from Mr. Sargent whether Dr. Johnson applied his blister on the same spot to which he had applied the fluid extract, or to a different spot. If to the same spot, it was not a fair experiment of the inactivity of the fluid extract; if to a different spot, it was. I throw these remarks out, not meaning to say any more now, that we may keep ourselves alive to this subject. The cantharidate of potassa has so many advantages over the old plan of making blisters, that if it is active it is a desirable advance, if for no other reason than because it can be washed off at any stage of the process, and there is no danger of making the blister larger than necessary, and no danger of vesicular trouble from the cantharidin being absorbed.

MR. EBERLE.—I can add my testimony to the inefficiency of cantharidate of potassa. My attention was called to an article published a short time ago, which recommended the use of the alkaline solution in preparing the ordinary ointment, that is, treating the powdered cantharides with alkali, drying carefully and re-powdering it. Twelve hours' application of the cerate afterwards made from the powder produced no effect whatever. A portion of the same powder, made up into ointment in the ordinary way, acted promptly. I was obliged to throw away a considerable quantity of it from its want of power. I believe Mr. Preston, in Mr. Procter's store, made similar experiments, with the same results. In a conversation with him by my principal clerk, Mr. Preston stated that he also made cerate in a similar way, and after a trial was obliged to throw it away.

DR. SQUIBB.—I have made quite a considerable quantity of this fluid extract of cantharides, which has been disseminated all through the United States at the army stations, and is being tried. They do not, by my advice, depend upon it, but take the older preparation, the cerate of the extract in addition to this, so each possesses a supply of both, and I am in the hope, during the next year, to have something definite about it.

THE PRESIDENT.—My experience has been the same as Mr. Eberle's. The original paper by Professor Dragendorff was published in "The Pharmacist." Previous to its publication, we prepared a cerate according to the Dragendorff process, and considered it very active. It was not finished at the time "The Pharmacist" went into press, but we afterwards found that it was perfectly inert, and would not produce a blister.

MR. EBERLE.—It would seem that the action of caustic potassa, and after the cantharidate of potassa was formed, the liberation of cantharidin by the addition of the muriatic acid had modified the cantharidin somewhat.

THE SECRETARY.—I would suggest to Dr. Squibb, in his further examina-

tion, whether the waxy scum is not cantharidin. It occurs to me, since cantharidin is not able to decompose alkaline carbonates, that when cantharidin is combined with caustic alkali, the combination of the latter with carbonic acid would liberate cantharidin and throw it out of solution.

DR. SQUIBB.—Cantharidin is, by Dragendorff and Masing, pretty clearly shown to be anhydride; that it cannot be liberated in presence of water, that it cannot exist as anhydride after having once been compounded, that is, fixed by an alkali. It is acid when it takes its equivalent of water; then it unites with the potassa and forms cantharidate of potassa. If you precipitate it as anhydride again it goes back to its active condition, because the cantharidin itself cannot be managed by any solvent. There is no solvent that will take it up in proportions sufficient to produce a blister. It must be held in its natural combination with the fat of the flies to get it into its proper condition. Mr. Procter made some experiments many years ago, and furnished the best paper on the subject that we have had. He proved that we could get no liquid to hold enough cantharidin to produce an active blister. Olive oil and oil of turpentine were the best solvents he found, but when allowed to get cold they precipitated the cantharidin to such an extent, that though they were irritant they were not vesical.

THE SECRETARY.—When cantharidin is liberated is it separated in a form in which it is soluble in water?

DR. SQUIBB.—That I don't remember, but my impression is it is.*

MR. ABELL.—Cantharidin may be prepared from the aqueous infusion obtained by treating cantharides with water, and the resulting extract with alcohol and ether.

THE SECRETARY.—Mr. Abell is correct. Cantharidin is very slightly soluble in water, but it is supposed by Robiquet to be rendered soluble in water by the presence of a yellow body in cantharides, and after the removal of that yellow body to be either insoluble, or slightly soluble in water.

MR. BALLUFF.—Acetum cantharidis is a very effective blistering fluid, as I have heard from many physicians, and is applied with very good effect in a concentrated form.

DR. SQUIBB.—That is the acetum cantharidis, but not the solution of cantharidin in acetic acid. Prof. Procter tried acetic acid as a solvent of cantharidin, and found that it took it up in small proportion, but not enough to produce blistering.

Mr. James G. Steele, in a letter to Mr. Doliber, explained how he was prevented to obtain the information necessary for answering Query No. 10, and desired to have the subject continued to him for another year. The request was granted.

Query No. 11 was not replied to. In answer to Query No.

* When cantharidates are decomposed by a stronger acid, one equivalent of water is eliminated and cantharidin regenerated; see Dragendorff's paper in Pharmac. Zeitschr. f. Russl., vol. vii, Buchner's N. Repertorium, 1867, &c.—(EDITOR.)

12, regarding the Production of Milk-Sugar in the United States, Mr. Joseph L. Lemberger read a paper, which was accepted and referred; also a paper by Mr. R. Rother, on Syrup of Senega, in answer to Query No. 13.

MR. BEDFORD.—In regard to making syrup of senega, a great deal has been written about it, and some years ago I made many experiments with it myself. I have found that when the tincture obtained from senega is heated to the boiling-point, for a few minutes, then allowed to cool thoroughly, filtered, and then evaporated, with a proper quantity of the sugar, a syrup will be obtained, with which I never had any trouble. It seems to me, the process suggested is very troublesome, and the same result can be accomplished by the simple method of removing the pectin by heating to the boiling-point, and filtering when perfectly cold, and before further evaporation.

MR. EBERLE.—Some years ago Mr. Diehl prepared a paper on preparations of senega. I was induced to make experiments on his plan, and found it thoroughly successful. I think it makes the handsomest syrup of any plan yet proposed. It consists in exhausting the root with water, evaporating to a small bulk, and treating with alcohol as far as that will exhaust it; evaporating that solution to a small bulk, treating it with water, and making a syrup of the aqueous solution.

No reply was received to Query, 14 on a Concentrated Pulverulent Preparation of Senna.

Prof. Procter read a paper by Mr. E. J. Weeks, on Tests for the Purity of Oil of Erigeron, in answer to Query 15.

Queries 17 and 18, on the Quality of Commercial Extract of Liquorice, and on Granular Effervescing Salts, were not replied to.

Mr. Remington read a paper by Mr. T. J. Covell, in answer to Query 19, on a Drug Mill best adapted for the use of the Pharmacist.

MR. EBERLE.—All pharmacists will agree that a small mill for ordinary purposes, would be a useful article. The agricultural implement stores have a small mill made by Swift, which is sold usually as a grain mill, to be used in grinding feed in the country. It is rigged up in barns on perpendicular beams. That mill is so constructed as to be much better applicable to the smaller operations of the shop than Swift's large mill, or any of the large mills that are presented to us. I have used such a one probably ten years, and recommended it to some members of this Association, one of whom is present, who has had it in use. In the course of ten years I have worn out three mills. It is constructed with a revolving plate on which are concentric

rings composed of wedges protruding from the surface of the plate, meeting corresponding surfaces on the thickest portion of the mill. It constantly sharpens itself until the points are completely worn away, and it is always in the same condition until it is entirely useless, which requires several years, if it is even used almost daily. That mill can be adapted to any of the purposes of the store, and will grind up the material, for instance, for five gallons of Huxham's tincture, in a short time. The cost of the mill is not more than $2.50. It is not made for this purpose, but I was attracted to it by the facility with which it grinds corn and oats, or anything of that description, and I think it is worth while for the members of this Association to bear it in mind, and if they come in contact with it to purchase one. Mr. Heinitsh has one, and probably he can indorse what I say.

MR. HEINITSH.—I use mine almost daily, and I find it very convenient. I prefer it to the large mills for ordinary store use. It is perfectly clean and very cheap.

The subject of Query 20, on Nitrous Ether, was continued to Prof. Bartlett for another year. Queries 21 and 22 were not replied to. In answer to Query 23, on the Best Arrangements for the Dispensing Counter, a paper accompanied by diagrams was read by Mr. John F. Hancock; it was accepted and referred.

Dr. Squibb read a volunteer paper entitled, "Note on Aconite Root; also one entitled, "Note on Rhubarb;" both of which were accepted and referred. In illustration of the latter subject, some cases of rhubarb had been placed in the exhibition-room.

THE SECRETARY.—Dr. Squibb made a statement that rhubarb came by the overland route. I should like to ask which route he referred to?

DR. SQUIBB.—They call the Isthmus of Suez an overland route, which, now, it is not, but the overland route mentioned and intended in the paper ought to have been explained there. It is by way of San Francisco, and overland over the Pacific Road. Each of them take three or four thousand miles by water, although they are called overland routes.

When Query 24, on Commercial Solutions for making Mineral Waters, was called up, Professor Procter read a letter from Mr. Moith, explaining the reasons for his inability to answer it, which were substantially mentioned before in connection with Query 4.

THE SECRETARY.—In regard to this subject I would state that Hager has published formulas for all the mineral waters, which are to be found in the second volume of his "Manuale Pharmaceuticum." It has been published, and may be obtained either in the Latin or German language.* So far as I recollect, the formulas are calculated for litres and drachms.

MR. WRIGHT.—Hager has published a book on that subject alone.

Queries 26 and 42 were continued to Mr. Mercein for another year. Query 27, on the Quality of Commercial Copaiba, received no reply. A paper, by Professor Prescott, on the Quality of Commercial Glacial Phosphoric Acid, was read by Professor Procter, in answer to Query 28, and referred.

DR. SQUIBB.—My experience in regard to glacial phosphoric acid is very similar to that of Dr. Prescott. There is always a slight trace of those impurities present, although I have never quantitatively examined them. In addition to those, another impurity, not mentioned in the paper, is observed, which turns the solution made of a pink color, and which I therefore supposed to be manganese. It is my custom always to pass a current of sulphuretted hydrogen through the solution before finally evaporating it to the proper quantity, as a condition of safety to the product.

No replies were received to Queries 29 and 30. In answer to Query 31, on Tests for Wood Creasote, Professor Sander read a paper, which was referred.

PROF. SANDER.—I could not make wood creasote myself from wood tar, and therefore I cannot say whether Morson's test is correct or not. I have been told it is a peculiarity of Morson's creasote only to be insoluble in glycerin. That being the case, I wish to prepare creasote from wood, or have it prepared in St. Louis, where there is a factory, and then make the test with wood creasote, coal-tar creasote, and commercial samples I may obtain.

MR. REMINGTON.—I went over the ground as soon as Morson's test was published, and having some of his wood-tar creasote on hand, I tried the test exactly as he suggested, and found that he was correct in every particular—that glycerin is a test for Morson's wood-tar creasote. When glycerin was applied to the ordinary creasote of the market, it produced a perfectly clear solution, showing, according to Morson, that it was coal-tar creasote, and not wood-tar creasote, and when applied to carbolic acid, a perfectly clear solution resulted. Morson's test is to mix equal parts of glycerin and wood-tar creasote; the mixture is milky. But even if a small proportion of coal-tar creasote

* The title of the volume referred to is, "Adjumenta varia chemica et pharmaceutica atque subsidia ad parandas aquas minerales. Scripsit Dr. H. Hager. Lesnæ. Sumptibus et typis Ernesti Guenther."—(EDITOR.)

is present, it is enough to make a clear solution, showing that the wood-tar creasote is adulterated. Then the question comes up, whether his test is a test for wood-tar creasote or only Morson's wood-tar creasote. It has been asserted there is something else in the wood-tar creasote made by Morson, which makes this milkiness, and that glycerin is no test for any other than Morson's or some other that contains this impurity. I hope Mr. Sander will investigate this subject, as it is quite important, there being no real reliable test on the subject.

PROF. SANDER.—I may add, in consequence of the remarks of Mr. Remington, that the creasote, which did not dissolve in glycerin, made the milky mixture, but it separated entirely afterwards.

THE SECRETARY.—It will be recollected that, after the appearance of Morson's paper, Dr. Flückiger made, likewise, experiments, and found Morson was, to a certain extent, incorrect, so far as creasote which Flückiger knew was wood-tar creasote, of German make, was concerned. He found that this, when mixed with concentrated glycerin, was perfectly soluble, the same as carbolic acid, but when the mixture was subsequently diluted by dropping water into it carefully, there was a point when the glycerin solution of the wood-tar creasote turned milky, while the solution of carbolic acid remained clear; so it may be necessary to dilute the glycerin, to a certain extent, before the test can be applied.

DR. SQUIBB.—That is the conclusion he came to, that Morson had used commercial glycerin instead of good officinal glycerin.

The subject was continued to Professor Sander.

The following resolution was offered by the Business Committee, and passed unanimously:

Resolved, That the Faculty of the Cleveland Medical College, and that of the Medical Department of the University of Wooster, be invited to seats in the Convention.

On motion, adjourned to Thursday at 9 o'clock, A.M.

Fourth Session.—Thursday Morning, Sept. 5th.

Pursuant to adjournment the Association met, the President in the chair.

After the reading and approval of the minutes of the third session the Secretary stated that in obedience to the resolution passed yesterday he had telegraphed to the chairman of

the Committee on the Progress of Pharmacy, and in the course of the evening received the following telegram in reply:

LOUISVILLE, KY., September 4th, 1872.

JOHN M. MAISCH, Secretary,
Care H. C. Gaylord.

Report will be ready for Publication Committee.

T. E. JENKINS.

THE PRESIDENT.—What action will the members take in regard to this telegram? The Secretary would like to be informed how long he is to wait for the report.

THE SECRETARY.—I would state that my experience in regard to the publication of the Proceedings is as follows: When I have all the manuscript in my hands I can make arrangements with the printer for an early publication, but if I can furnish him the manuscript only in small quantities I have to wait his convenience.

MR. GORDON.—I move that the matter be left discretionary with the Secretary as to how long he should wait, so it shall not delay the publication of the Proceedings. It seems to me it had better not be put off very long. An interest is generally felt in the early publication of the Proceedings. I think it had better be left to his discretion.

THE SECRETARY.—I should rather prefer it would not be left to my discretion, because the report on the Progress of Pharmacy has always been an important feature of our annual publications, and it ought hardly be without it.

MR. GORDON.—You can communicate with MR. Jenkins in the meantime, and if you find the delay is going to be so great that it would not be advisable to wait for it, you can go on with the publication.

DR. SQUIBB.—We have in times gone by made a law on this subject, that papers must be in the hands of the Secretary at the conclusion of the meeting. That law became very soon a dead letter by the exceptions that were made to it, and the reports of the several committees have been allowed to go by, and have given the Secretary very much trouble within my recollection. We are now establishing the precedent of receiving and ordering the publication of a report that we have never seen. Although we have great confidence in the judgment of the Executive Committee, there appears to have been some difficulty in regard to the working of the Committee on the Progress of Pharmacy, and I should very much feel like limiting the time. Still, if the Association choose to accept the report and order it to be printed, in the discretion of the Executive Committee (for we must remember that they always review a report of this kind) it may be considered perfectly safe to take this course; yet by so doing we are still further establishing the precedent that reports may be delayed. I feel a little at a loss how to form an opinion on this subject, because I should be sorry that any member should take the time and labor to prepare such a report and we not have the advantage of it, and he have the mortification of having had his labor in vain. I should feel like seconding

Mr. Gordon's motion, provided the time was limited and the responsibility not placed upon the Secretary, and therefore move to amend that if the report of the Committee on the Progress of Pharmacy is in the hands of the Secretary by the end of this month it may be published in the Proceedings; if not, that the chairman of the committee be informed that we will gladly accept it as a volunteer paper for next year.

Mr. Gordon.—I accept the amendment to my motion.

The motion, as amended, was agreed to.

On motion of the Business Committee, it was resolved that a committee of three be appointed to select and report on the time and place for holding the next annual meeting. The President appointed Messrs. Robert J. Brown, Leavenworth, Kansas, Charles L. Eberle, Philadelphia, and H. J. Menninger, Raleigh, N. C.

Professor Moore on behalf of the Committee on the Delegation from the Georgetown College School of Pharmacy, reported:

Mr. Moore.—A majority of your committee met last night, and after consultation with the delegate from Georgetown College he requested that his credentials should be withdrawn, and that there should be no notice taken of his application. The committee concluded to accept that, and to report to the Association the request of Prof. Hickling to withdraw his credentials, and his wish that nothing relating to it be published in the Proceedings.

Prof. Judge.—Simply to omit from the published Proceedings everything in relation to it.

Dr. Squibb.—I am opposed to that, because I think we cannot consistently do it. I think the minutes of the Association would be incomplete without the record of all these proceedings that were had.

Prof. Judge.—It is not asked that the minutes be interfered with in the least, only that no publication be made in the published Proceedings; not in the minutes or records of the Association that are kept by the Secretary, but simply the published Proceedings.

Dr. Squibb.—As we publish our minutes *in extenso*, if anything was left out from the published minutes it would appear to the world at large that we had no such proceedings; therefore it is tantamount to expunging them from the minutes entirely. That a private record should be kept of some portion of our proceedings and a public record of the rest of our transactions seems to be the same thing as expunging a discussion which has taken up much of our time, and which has been and is still a very important one. I desire now to throw out a suggestion, and will make it in the form of a motion if it meet the approbation of the members generally, that this subject be recommitted

to the committee to draft a resolution marking out a course for this Association to take in the future. So large and so good a committee can easily define what should be the course of the Association for the future and present it to us at a future session; we may then decide the matter and get rid of personalities altogether. We shall then have established a rule which we can publish, and other colleges who may desire representation here can then see what they have to send their delegates upon. I think it is time that this question was settled. The Association used a great deal of time upon it at the last meeting; we have now used up much valuable time upon it; and if this committee will define this to the best of their judgment, and present to us in the form of a resolution what class of delegates we may admit here, it will at once relieve the Committee on Credentials at future meetings of this Association from all trouble in the matter. I am speaking now to the reception of this report, and simply throw out this suggestion; if it meets the approbation of the members present I should be glad to make a motion to recommit the subject with instructions to bring forward to the Association a plan by which this representation shall be hereafter governed.

PROF. MOORE.—The understanding of the committee in this matter is not to expunge the actual minutes of the Association; there was considerable argument *pro* and *con* yesterday, which I presume has been taken down by our phonographer, and it is not the wish to publish that debate. The fact of the application, the appointment of the committee, and the result of its labor is part of the business of the Association, and must be published, but it is not the wish to publish the argument *pro* and *con*. In regard to the resolution to recommit the subject, I think that might be well enough.

DR. MENNINGER.—It is not unusual to proceed in this way in representative bodies chosen as we are—to allow the minutes to remain as they are, and then in deference to the wishes of the parties interested, particularly when no decisive result has been obtained, not publish the discussion.

MR. BROWN.—Future meetings of the Association should understand perfectly what has been done in such cases. I am in favor of the full publication of everything connected with it.

PROF. JUDGE.—I would suggest that this matter may be better disposed of by dividing it, acting first upon the withdrawal, if there is any action desired upon that, and then the matter of the amendment can be brought up.

DR. SQUIBB.—It is not usual with us to publish these discussions in detail, although the phonographer takes them down. My aim was to preserve the record of the transaction, namely, that such a delegation was offered, that the admission of such a delegation was considered in the Association at some length, that a committee was appointed, and that while the matter was pending before the committee the delegate withdrew. That certainly is part of our transactions, and I should be very much adverse to seeing it left out.

The discussion was continued at some length, when the question was divided, and on motion the report of the committee was received.

The question being taken on the motion to omit the discussion on the reception of the delegation from the published Proceedings, a division was called for, when fifty-eight members voted in the affirmative and nineteen in the negative; so the motion was carried.

DR. SQUIBB.—I now make a motion to recommit the subject of the delegate representation to this Association to the same committee, to report to-morrow morning some plan whereby we may define what kind of representation is to be admitted to this body. That will involve what this Association considers to be a College of Pharmacy in the proper sense of the word.

PROF. MOORE.—I am in favor of the motion if Dr. Squibb will modify it, and not refer it to the same, or to so large a committee. To-night the convention of teaching colleges meets, many of that committee are members of it, and expect to attend the meeting. Then again, we found that it is almost impossible to get all the members of a large committee to the meeting. I think we should have a smaller committee.

PROF. JUDGE.—As the motion of Dr. Squibb has been seconded, I offer as a substitute this amendment; that Chapter VI, Article VI, be amended by inserting in the first line, after the words Colleges of Pharmacy, the following words: "Controlled by pharmacists." I move that this amendment be referred to a committee of five, to report either this or some other amendment to bring about the desired result. The by-law, when thus amended, will read, "All Colleges of Pharmacy controlled by pharmacists, and all local pharmaceutical associations, shall be entitled to five delegates," and so on.

DR. SQUIBB.—I am opposed to the amendment, because, although its spirit is that which we are all in search of, it seems to me the same arguments which were advanced, and which were well brought forward, would justify, or rather require so large and so well-distributed a committee. If that committee could bring forward such a proposition as this, after duly considering it (which we cannot do here), or should consider that as a sufficient definition of our representation, then I should be in favor of it, but I should like to see it well considered. There may be some doubt as to what constitutes pharmaceutical control of a college, and there is quite a wide field for judgment there. We have an excellent committee, and I hardly think it would take a great while for that committee to decide the question upon such a plan by a slight amendment to the by-laws. If that can be done by a large and influential committee, we get rid of the objections that might be made to a small special committee. On this committee we have a member from each delegation present, and the district which is now in question has two representatives on it. I acknowledge Mr. Moore's objections, but I think the committee could meet, and in a half hour decide the question satisfactorily. Yesterday when this committee met, there were three or four members sitting beside me, who didn't know that a meeting had taken place until it was over.

PROF. MOORE.—I think it is as much the duty of the member to hunt the committee as it is for the committee to hunt up the member.

Prof. Judge modified his motion to amend, by moving to refer the amendment to the by-laws proposed by him, to the Committee on the Georgetown College delegation, with instruction to report this or such other action as they deem proper. This was accepted by Dr. Squibb as a substitute for his motion, and was then adopted.

The Committee on Credentials reported having received the credentials of the Mississippi State Pharmaceutical Association, accrediting its Secretary, Mr. Hampden Osborne, a delegate to this meeting. The report was on motion received.

The Executive Committee reported the names of the following applicants for membership, all having complied with the requirements of the by-laws:

Charles D. Chase, St. Louis, Mo.
William J. Bertolett, Shreve, O.
William H. Hartness, Cleveland, O.
Bruce Huling, " "
J. Penn Moore, " "
Daniel Myers, Cleveland, O.
William J. Scott, M.D., Cleveland, Ohio.
Louis A. Matos, Philadelphia, Pa.
Sophus Sorensen, Meadville, Pa.

Messrs. Robert W. Gardner and George Leis were appointed tellers, and reported the unanimous election of the candidates.

PROF. MOORE.—I would request from the Committee on Credentials, that the St. Louis College be permitted to forward the credentials of their delegates to the Secretary, that they may be published. The delegation is here, but from some oversight of the President, or Secretary, their credentials have failed to arrive. I think they ought to be permitted to place them in the records of the Association.

The motion was agreed to.

The following telegram was read by the Secretary.

NEW YORK, September 5th, 1872.

TO THE AMERICAN PHARMACEUTICAL ASSOCIATION,
Care Mr. Gaylord, Pharmacist.

The Committee on Unofficinal Formulas finds it impossible to attend to account for non-completion of written report and of experiments.

EDWARD L. MILHAU.

DR. SQUIBB.—The translation of that, if the telegraph operator got it right, is, I have no doubt, that Mr. Milhau intended to be here, but his presence here was controlled by the arrival or non-arrival of his brother in town. His brother seems not to have arrived, and therefore he could not be present with his report.

THE SECRETARY.—It seems he has commenced the report, but not finished it.

MR. BEDFORD.—I would move, if it is in order, that the Committee on Unofficinal Formulas have leave to present their report to the Executive Committee.

DR. SQUIBB.—I am opposed to that. It will not be well for us to have any more reports handed in unfinished. This is not an annual report, which we require for the Annual Proceedings, like the report on the Progress of Pharmacy, but it will be just as good next year as now, and if Mr. Bedford will accept the amendment, I will move that the committee be continued until next year.

Mr. Bedford accepted the amendment, and the motion to continue the Committee on Unofficinal Formulas was agreed to.

THE PRESIDENT.—There is a Committee on the Stamp Tax. I am made aware that that report is ready, but has not reached us. What is your pleasure in regard to that?

DR. SQUIBB.—I move if there be any reports of committees not received by this Association, prior to its adjournment, that those reports be allowed to pass over until next year. Such reports as this we cannot well transfer to the Proceedings without hearing them. They are special subjects, and the reporter is merely the agent of this Association, to present to us the views of that committee. We cannot know what the views of that committee are, nor can we commit ourselves by publishing the views of such special reports without hearing them. Therefore, I favor the laying over of the report until next year, unless it can be received in time to be heard at this meeting.

The motion to lay over until the next meeting all reports of committees not received prior to adjournment, was concurred in, and a resolution carried providing for the continuance of the Committee on Infringement of the Stamp Tax.

Mr. P. Balluff read a volunteer paper on Pharmaceutical Legislation in the United States, which, on motion, was accepted and referred for publication.

MR. WRIGHT.—While I coincide entirely with Mr. Balluff's report in the main, there is one point I would like to offer a suggestion about, and that is,

in regard to State aid to pharmaceutical bodies. I think it would be a great mistake to play with a bear. As long as we are self-sustaining, the legislature is not so apt to interfere with us, and I think it would be much better for pharmacists to put their faces in the direction of accomplishing all by themselves.

On motion of the Business Committee, the Committees on Legislation and on the Arrangements for the Meeting in 1876, were continued.

It was resolved that a Committee on Adulteration and Sophistication, consisting of three members, be appointed. The Chair named Messrs. Charles Rice, of New York, Thomas N. Jamieson, of Chicago, and Emil Scheffer, of Louisville, to serve on this committee.

Mr. Wm. Saunders, on behalf of the Committee on the President's Address and Secretary's report, presented the following:

REPORT OF COMMITTEE APPOINTED TO CONSIDER THE SUGGESTIONS CONTAINED IN THE PRESIDENT'S ADDRESS AND REPORT OF PERMANENT SECRETARY.

Your committee fully approve of the suggestion of the President to create a permanent fund for the Association as soon as the state of our finances will admit of it. We also approve of the recommendation to divide, in some manner, the labor attending the compilation of the report on the Progress of Pharmacy, and would suggest that a division might be made by assigning the German portion of the labor to one of the members, the French to another, and some further division of the American and English portion among the remaining members, each one receiving due credit for the portion of the work done. Your committee, however, do not feel competent to indicate the exact nature of this division, but would prefer leaving the details in so important a matter to the combined wisdom of the Association. In case such a division of labor is not found practicable, it might be well for the Association to take into consideration the propriety of appointing some one competent person to do the work, and paying him for it, since your committee deem this portion of our yearly volume as one of the greatest interest and value to every pharmacist.

We believe it would be fully in accordance with the wishes of the members, that the by-law in reference to the appointment of the Committee on Specimens, should be so modified as to make their appointment one of the items of business at our first meeting.

In reference to the suggestions offered by the Permanent Secretary in his report, we would recommend that power be granted to the Executive Committee to order such additional foreign journals as they may deem necessary

to aid the Committee on the Progress of Pharmacy in their work, and also to obtain such illustrations for papers in future volumes of the Proceedings as may, in their judgment, be required to elucidate the subjects treated of.

We have duly considered the resolutions of the College of Physicians of Philadelphia, appended to the Secretary's report; and, while we fully approve of the idea of surrounding poisonous medicines with every possible safeguard, yet, in consequence of the great difference of opinion among pharmacists as to the advisability of using special bottles for dangerous compounds, or the practicability of giving the proper antidotes for poisons within the compass of a small label, your committee do not recommend the Association to take any action on these resolutions at present.

WM. SAUNDERS,
WM. S. THOMPSON,
JOEL S. ORNE.

The report was, on motion, accepted.

DR. SQUIBB.—I now move the adoption of the report, which carries with it the recommendations contained therein.

PROF. MOORE.—Does not the committee, in their report, propose an amendment to the by-laws?

THE SECRETARY.—They *suggest* an amendment to the by-laws.

DR. SQUIBB.—We only adopt them as suggestions.

PROF. PROCTER.—I would like to ask if the matter of poison bottles is entirely disposed of by this action?

The motion to adopt the report was carried.

DR. SQUIBB.—The suggestion there which most needs action at the present time is that in regard to the Committee on the Progress of Pharmacy. I move that this committee consist of three members (the number may be modified), without a chairman, who shall divide the labors of that committee between themselves, and make separate reports. That is to say, each member's report will then be a special report on the Progress of Pharmacy. This would enable the committee to divide the work among themselves, due care being taken in the appointment of the committee to appoint such as would be competent to discharge the duties. This, I think, might be tried for a year or two. I rather suppose we shall have to come to the plan suggested by this committee, namely, of employing an editor and paying him for it, but I think it would be judicious at present to appoint a committee, to consist of a number of members, and not have a chairman to do the work. Then no chairman will control the committee, and each member will be responsible for his own work. The committee may meet and apportion the work, and each member may go home, knowing what he has to do. This would overcome the present difficulty, and would bring it within the scope of any prac-

tical pharmacist to go over the literature of one branch of that report. That is the object of the motion. I simply throw it out as a suggestion, before bringing it before the Association.

THE SECRETARY.—That would involve an amendment to the by-laws, because the committee consists of five members. Would it not be well, for the present year, to suggest to the present committee that they divide the labor among themselves, and report the resolution next year?

DR. SQUIBB.—It would be easy to divide it into five, instead of three. Such a motion will accomplish it.

PROF. DIEHL.—I think there will be some practical difficulties in the way of this proposition. We all know that we have journals in the English, French, and German languages. Now, dividing the work, so as to give to each member a branch, say, to one, materia medica, to another, pharmacy, and to the third, chemistry, you will have to send the journals from one member of the committee to another, unless they happen to live in one city. The trouble will be, then, that probably we will not get members on the committee that understand the three languages.

DR. SQUIBB.—If Mr. Diehl will allow me one word of explanation—I did not contemplate that we should divide them into three parts, materia medica, pharmacy, and chemistry, but divide the literature, German for one, French for one, and English for the third.

PROF. DIEHL.—I was going to reach that point. I think there is an objection to that, which is this. The journals repeat by copying, and very likely we will have repetitions in every language. We will have the majority of the important articles in every language, and would have them in each report. That is the objection to dividing the labor. I think, after all, we will have to come to appointing an editor. It is the only way in which it can be managed. Pay him for his services, and then we can expect him to make a good report.

PROF. PROCTER.—That is a point I wish to speak of. I know by experience that journals in three or four languages will have the same articles; and if there is not a constant understanding between the three members of the committee, as they go along, you will have this report swelled up by the same matter.

MR. SAUNDERS.—This objection was felt by the committee, and it was thought if the members took only the original articles, that difficulty might be obviated.

DR. SQUIBB.—When they are reproduced they are always credited, and generally published as abstracts. For example, a paper originally in German, will be published in full in the German journal, and be abstracted in others, if it is not of sufficient importance to be published in full.

PROF. PROCTER.—I wish that was true.

PROF. DIEHL.—I would like to make another remark in this connection, that struck me in reading several of the reports lately. It seems to me the committee should endeavor to present the subjects from the foreign journals in as condensed a manner as possible, and refer to all the journals in which

the article may have been published, as they come across it. Very frequently, in reading over this large number of journals, we find half a dozen of them having the same article. The committee should quote all, and condense the article as much as possible, giving only the notable points, from which the reader may judge whether the subject is of any use to him or not, and not make them as full as it has been the habit to make the extracts in many cases—in some cases almost entire copies of the article.

THE SECRETARY.—I don't see any difficulty in the way of Dr. Squibb's motion. If I understand it correctly, it is that the Committee on the Progress of Pharmacy be recommended to divide among themselves the labor, and that each member make a separate report. If they don't choose to do it, they are not compelled to adopt the suggestion.

MR. BALLUFF.—I would ask whether our Proceedings are in the market for sale to everybody, so as to furnish some income to the Association?

THE SECRETARY.—They yield a little.

MR. BALLUFF.—They would yield more if it was more directly brought before the profession. I would be in favor of having a reporter appointed for that purpose, because only one person can do it properly.

DR. SQUIBB.—I will throw out, what I was intending to move after this subject was disposed of, that we propose for candidates for editorship, fix a salary, and then publish in our Proceedings that candidates for the editorship will be received at our next meeting, to be selected from by the Association at large. This, it seems to me, does away with the machinery of the British Conference, where it was advertised in the newspapers, because, among ourselves, here are the only ones who are concerned in the matter. It should become known among us that we will accept proposals for the editorship, and pay a salary that will be a compensation for services rendered, and I would not make that a very small salary, if my judgment was consulted in the matter. Pay an editor well for his work, and expect him to do it well. We should then get a satisfactory report. At any rate, we could change him from year to year, until we found a satisfactory man.

THE PRESIDENT.—I would ask Dr. Squibb to withdraw his motion. We have a good chairman on the Progress of Pharmacy for this year, and I think we ought to allow him the same power that the previous chairmen have had. Mr. Louis Dohme, of Baltimore, will certainly furnish us with a good report. Let us take up Dr. Squibb's suggestion in regard to paying an editor for the year after this.

PROF. DIEHL.—If I comprehend Dr. Squibb's motion, it will not affect Mr. Dohme at all.

DR. SQUIBB.—It would take away the chairmanship and make each reporter a chairman. I am willing to withdraw the motion, however. He will see it in the Proceedings, and it will have the same effect as to pass the resolution.

The motion was withdrawn, and the subject dropped for the present.

DR. MENNINGER.—I move that an amount to be determined at each meeting shall be set apart from the funds of the Association for the purpose of creating a sinking fund for its uses and purposes. If we commence a nucleus of this sort, in a little while it will amount to a considerable sum, and we will get the use of money that, if there is no such provision, will be expended. It is on the same principle that if you don't have a systematic way of saving you never save anything.

The Secretary read Article IV of the constitution, and suggested that an amendment to it would be required.

The Secretary announced that the Committee of Arrangements of the Cleveland Druggists and Pharmacists had found it necessary, owing to threatening storms, to postpone the lake excursion contemplated for this afternoon until to-morrow.

DR. SQUIBB.—I hope the Association will express its obligations to the gentlemen who have prepared this excursion, and ask them to defer it altogether instead of postponing it until to-morrow. The Association will probably get through its work by to-morrow morning, and comparatively few may remain. It would seem to be a pity to put these gentlemen to the expense of an excursion on the lake for the few. If the Business Committee will bring in a proper resolution and then let those of us who have time at our disposal take an excursion among the oil refineries, the iron and steel works located in and near this city, it would probably be more to our taste and relieve these gentlemen from the expense. I have spoken to Mr. Gaylord on the subject, and expressed this as the wish of several of us, but Mr. Gaylord, being only one of a number of gentlemen who have this in charge, does not feel authorized to make any change in the arrangements. Now if the Association take it up, thank these gentlemen for their kindness, and decline the excursion for to-morrow, as it cannot take place to-day, I am confident they will take no offence at our doing so.

The Business Committee moved that the invitation for an excursion upon Lake Erie contemplated for to-morrow afternoon be received with the hearty thanks of this Association, and that in view of the business arrangements of the members the invitation be respectfully declined.

DR. GARRIGUES.—There are quite a number of ladies here who have had very little opportunity to see the city and enjoy its hospitalities. There are quite a number of members who have expressed themselves that they would like to go on the excursion. Some of us must return, but the larger number would enjoy it, I have no doubt.

DR. SQUIBB.—We came to Cleveland this year where we had two members

only. It is a very great *onus* for a man to be appointed Local Secretary at best, particularly where he is left alone with but one assistant, to provide for the Association. I was in hope it would inaugurate what this Association has desired to do for years past, namely, to have the privilege of going where it pleased and paying its own expenses. There is an abundance of trouble to be piled upon the Local Secretary wherever we go, without saddling him and others with the expense of receiving us. I was in hope we should come here with no excursions and no entertainments, and establish this as a precedent. This subject has come up annually at every session, and many of us have opposed this burden. I am in favor of throwing every obstacle in the way of incurring expense to those gentlemen who are so kind as to receive us and offer us their hospitality. Therefore there is an underlying objection to this practice, which is fairly stated since Mr. Garrigues has brought the subject up, that a number of us are opposed to these excursions in toto because it saddles with expense those who can ill afford it. We have an object in view and it is not entirely a social one. The social one is always met by the hospitality received from gentlemen and their wives wherever we go. We have never failed to receive the hospitality that we have received in Cleveland. Let us get rid of this burden of expense we are to people. It puts us under the disagreeable necessity wherever we go of being under a charge. I would like, and it was the object of this motion, to get rid of the expense to these gentlemen of this excursion entirely. They have made another proposition, that instead of this they provide carriages, and allow the members who choose to take them and see the oil refineries, water works, and steel manufactories. Now then, if this could be done in the way that these gentlemen propose to do it, namely, by putting us in the way of having a carriage, going wherever we please, and seeing what we are most interested in, and then letting us pay for the carriages, it would be just the thing we want. Then those who stay later as well as those who go earlier would accomplish their objects, and there would be no necessity for this set plan which an excursion, &c., involves. If the committee be involved in the expense of bringing carriages enough to take us all, and only half go, they will have to pay the expense just the same, but if they will see that the carriages are there, and will allow us to pay for them without being imposed upon, it will accomplish the object I have in view.

MR. DANIELS.—I move that the subject be laid on the table till the afternoon session for conference upon the matter.

MR. JAMIESON.—I would state that that would be wrong to the gentlemen of Cleveland, as they have to know now whether we are going or not. A postponement is unnecessary, and unjust to these gentlemen.

DR. SQUIBB.—The question is whether to express our hearty thanks to the gentlemen for the provisions made for our comfort and pleasure, but that we decline them in view of the uncertainty of the weather and the unnecessary expense they will be put to in consequence of the changes of weather that may be anticipated; that we decline this excursion not without recognizing their hospitality at all, but that we simply decline it because it is impracticable and because the Association wants to take a different ground as precedent.

The motion was carried.

Query 32, on Soap Liniment, was continued to Mr. Ehrman, at his request, he having been unable since the Chicago fire to make a sufficient number of critical experiments to warrant a reply.

Queries 34, 35, and 37 were not replied to; No. 36, on the source of American Cod-liver Oil, was continued to Mr. Colcord.

Mr. Ottmar Eberbach read an essay on the Quality of some Commercial Elixirs, in answer to Query 38.

MR. SHINN.—Physicians are led to the adoption of these elixirs for two or three reasons; one is they like to have a very nice formula presented to them to save the trouble of making one out. Then again they are not familiar with pharmacy sufficiently to be enabled to compose a nice preparation. If we had an officinal aromatic tincture, as we have an aromatic powder, they could much more readily contrive formulas direct for each case, the exact amount of alkaloids and other articles they want, and have as nice an article as any manufactured. It is a malicious falsehood for some manufacturers to represent that their preparations contain such an amount of these various ingredients. It is calculated to mislead the physician, and might endanger the life or wellbeing of the patient. I think the physicians are inexcusable for adopting them. Another great reason is the ignorance and inefficiency of the great mass of pharmacists, who cannot make these preparations themselves, or who buy them instead of making them.

PROF. MOORE.—I don't know that it is altogether ignorance on the part of the pharmacists. The manufacturers canvass the country, visit every physician, make him a present of samples, and give him to understand that the preparation is to be had at every respectable drug store. The consequence is, the physicians prescribe them, and although the pharmacist may have a better article and all the talent to make what is necessary, he is compelled to keep a dozen kinds of the same elixir, sometimes articles that he knows to be worthless, to fill physicians' prescriptions. It is the result of the tremendous drumming on the part of the manufacturers, and ignorance on the part of the physicians.

DR. SQUIBB.—One little element my friend Moore has left out,—the profit to the dispenser; because if he did not make a good profit on these things he would not keep them at all. We are after a living, and we would not sell elixirs or anything else if we did not make money on them. I was told by one gentleman, if the angel Gabriel came down, made a preparation, and put his own stamp on the bottle, he would not deal in it unless he could make a fair profit on it. The paper that has been read is an important one, and if the pharmacists will take up its spirit and pursue it, they will do a great deal of good. Physicians are ignorant enough; they are liable enough to go on the ready-made clothing store principle; they will take anything that is compounded and save themselves the trouble of compounding, but while I am speak-

ing of a large class of physicians, fortunately there is another class, and to those pharmacists would do well to address themselves. There are no two patients whose conditions are right for the same preparation of these elixirs, and therefore it is really a ready-made clothing system; when you put a definite portion of strychnia, cinchona, and iron into a preparation, you foreshadow a case which requires exactly that preparation. Some require no iron, some a little more strychnia, some no cinchona, and so the physician puts a good many shot into his gun, or is induced to do so by drummers, in the hope of hitting something somewhere. The result of this is, it has become reduced to what is little better than fashionable tippling. It is a fashionable way of getting stimulants into the stomachs of women and children, and as such it deserves the serious reprobation of this Association. There is no way we can do more good, and place it in a better position with physicians and the community at large, than by setting our faces against this elixir swindle, as it is properly called in this paper.

MR. GARDNER.—When these preparations are made, although originally all the articles mentioned in the labels may have been put into them, when completed, they may not contain more than half the number they pretend to. In the preparation of pepsin, bismuth, and strychnia, they make the preparation acid, with a view of assisting the action of the pepsin. Putting in the acid causes the ammonio-citrate of bismuth to be precipitated. If they make it alkaline, then the pepsin is altered.

PROF. SCHEFFER.—I have stated in the August number of the "American Journal of Pharmacy," that the alkali does not precipitate the pepsin, but it brings it into a modified state where it has no action on fresh coagulated albumen. I have found in late experiments, that the bismuth salt acts in the same way as neutral alkali salts, like chloride of sodium, sulphate of soda, and so on, that at least the greatest part of the pepsin is precipitated from its solution when mixed with a solution of bismuth salt. I have found that notwithstanding it may contain the same digestive power (I have found that in one instance), in most cases it loses almost all its power. All the pepsin had been precipitated, and it did not act on albumen. I might here remark, that what I call modified pepsin, I found to be somewhat similar to the pancreatic juice, as it dissolves partly digested albumen as well in an alkaline as in an acidulated state. The pancreatic juice dissolves albuminous and fibrinous substances which have escaped digestion in the stomach, so it may be that the modified pepsin acts in the same way.

MR. BEDFORD.—In spending a day with Mr. King, at Middletown, last week, we were talking of the effect of pepsin and bismuth, and his results, as published in the September number of the "Journal of Pharmacy." He gave me a sample of his elixir for Mr. Scheffer, and says that after thirty days no precipitation occurs. It still acts on coagulated albumen, and contains the quantities given in that paper.

THE PRESIDENT.—The results of Mr. King, I think, will shortly be sustained. It is due very likely to a small quantity of bitartrate of potassa in the sherry wine that prevents the precipitation of bismuth, as we found

by a number of experiments made at my store. I would also state how I have overcome this elixir swindle. I have taken rather a peculiar stand in this matter. I have obtained samples of all those manufacturers who have drummers around the country to get physicians to use their elixirs. From their specimen books, or their labels, I write down their formulas, and I prepare a simple elixir which is composed of cardamom and orange-peel, and when prescriptions come into my store, I put in exactly the ingredients that these men claim. I have once or twice had physicians come to me and complain that my elixirs were not as pleasant. I said no, I did not expect they were, but they contained the ingredients that the manufacturers claimed for their elixirs, and since I considered myself quite as competent to make them, I should prepare them when prescribed. Some of you may think that is losing money because the physician will not send any more prescriptions there, but I have not lost any since I have taken that standpoint and adhered to it.

MR. BALLUFF.—That is very good, but can it not be regarded as a substitution? Is a pharmacist allowed to substitute one thing for another that is prescribed? For instance, pharmacists know that many physicians prescribe the extract of ergot of Dr. Squibb; has a pharmacist a right to dispense, instead of Dr. Squibb's, his own preparation? It is a question, I think, which has never been before any meeting, and it should be discussed. I know that some physicians (although we are very careful in preparing our pharmaceutical preparations, and enjoy a good reputation), if we should substitute our own fluid extract for Dr. Squibb's, would blame us for it. I think if a pharmacist dispenses his own preparation, made according to the officinal formula, he should be allowed to dispense it in all cases, as long as it is not a preparation after a private formula. I would like to hear an opinion on this subject, and in regard to what the President stated about substituting his own elixirs in place of those of the manufacturers prescribed by the physician.

THE PRESIDENT.—I do not substitute my elixirs. I simply put into the prescription exactly what the physician expects. He expects one grain of quinia, $\frac{1}{60}$th of a grain of strychnia, and so many of iron. I dispense it, and say to the physician, "I have put up the prescription as you wish it. Don't you wish it as the label says?" He says, "Yes." I denounce the thing as a humbug. I say, "You are dosing your patients with sweet alcoholic solutions, and not giving them the ingredients, but if the prescription is put up at my store, you get them." Then if he chooses to withdraw his patients from my shop, I will stand it.

PROF. MOORE.—I take rather a different plan from the President. I keep no man's elixirs in my establishment but my own, and I say distinctly to every physician who prescribes elixirs, if he wants John Wyeth's, or anybody's elses, he must send somewhere else. I have invariably found physicians say to me, "Furnish your own; all we want is a good elixir." I know establishments that have to keep a dozen different preparations. I don't have them; the consequence is, I don't have drummers. They know when they come to Baltimore, they need not come to me, and they don't come. In regard to substituting my own extract of ergot for Dr. Squibb's, I should

unhesitatingly do it, or any other officinal preparation. I make it and dispense it. I don't say this because I have any disrespect for Dr. Squibb, but I feel that I am as capable of judging of good ergot as perhaps Dr. Squibb is, and just as capable of making it as the hands in Dr. Squibb's employ. I think every apothecary, every pharmacist, is justified in making and dispensing his own preparations when they are officinal.

MR. BALLUFF —I always follow that course, and dispense my own preparation if it is officinal, but I brought up this question to inquire what the opinion is. Such a thing may cause a complaint before the courts. They might say, "You are a dispenser of medicines; you put up physicians' prescriptions, and it is your duty to compound them strictly, according to the wording of the physician's prescription."

MR. SHINN.—I think it is better sometimes to dispense according to the intention of the physician than according to his exact words. If we were to dispense according to their words, we should have more deaths than now.

MR. EBERLE.—I once had a physician tell me when I corrected an obvious mistake, that if he ordered brickdust, I was to put it in.

MR. J. F. HANCOCK.—My practice is to follow literally the prescription. I think it is the proper course. If any man's preparation is ordered, give it. If you wish to exert a moral influence, go and speak to the physician first. Give him your opinion, and if you can give him just reasons for not using this man's preparations, he may afterwards allow you to dispense your own. I have in my trade run out almost entirely the elixirs of the various manufacturers just in that way, by talking to the physicians. The physicians have been humbugged by the apothecaries, and when you make charges against physicians such as have been made here, you are wrong. We should not charge ignorance upon the physicians when we have so much of it among ourselves. They are ignorant because they are misled by reputable apothecaries, who, while pretending to be opposed to all this, do it themselves, excusing themselves by saying, they are opposed to it, but "if that man makes it, I must make it." I think the proper plan is to discourage the use of these preparations not consistent with science, by representation to the physicians.

PROF. MOORE.—I should like to ask whether Mr. Hancock considers a man that would do as he has stated, a "reputable apothecary?" Would a "reputable apothecary" deceive a physician, and will he get out a preparation which is not what it purports to be?

MR. HANCOCK.—I think we have some reputable apothecaries (men whom the physicians and apothecaries regard as competent, and who have a good standing in the community), that do things, touching these manufactures, that are not exactly honest, and I think they compromise themselves very much by their acts.

DR. SQUIBB —I think this is a point upon which every man must be a law for himself. It is a matter in which we must be governed by our own consciences, and allow others to be governed by theirs. For my own position in the matter, I as a pharmacist, would not consider myself a reputable phar-

macist if I did not obey the order of the physician. If a physician was to order from me an article which I didn't have, I would decline the prescription. If he was to order Squibb's Fluid Extract of Ergot, and I hadn't that article, I would decline the prescription. I would not put up my own under those circumstances. I would let that physician know I made an officinal fluid extract as good as Squibb's, and would tell him that very plainly, and if he allowed, I would put it up. So it would be with the elixirs of John Wyeth. I would tell the physician I hadn't that preparation, and could not put it in literally, but if he would allow me to put in my own elixir, with the constituents named on the label of John Wyeth, I would do it. I therefore oppose the position of Mr. Moore, although it may not be modest for me to do it, since my name has come in, but I cannot allow that I agree to any interference with the physician's prescriptions. The prescription should be literally fulfilled, or not fulfilled at all. Any man has a right to say, "I will not put up such and such a preparation." And any man's independence will be respected who will take that ground. If Mr. Moore chooses to say, "No, I make a fluid extract of ergot which is officinal; Dr. Squibb's professes to be nothing more than officinal; now, if you will allow me, I will substitute my fluid extract for his," there is not one reasonable physician in ten that will not allow him to do it, knowing his reputation, and then he will have the respect of that physician for an independent course, which he will not have if the physician finds out that he has done this without consulting him. That is where we all lose reputation, in taking the law into our own hands, and making our own law apply to others. As I said before, we must each be a law to himself, but we must not forget that the physician is a law unto himself. I know an apothecary in my neighborhood, who took the ground to a physician who said, "I want you to put up the preparations that Dr. Squibb makes, and that are on his list in my prescriptions" "Sir, I beg to decline that business. I make all the officinal preparations; Dr. Squibb has nothing on his list that is not officinal, and if you will allow me to put up your prescriptions, and put my preparations in, I will do it, but I cannot keep a line of Dr. Squibb's preparations to supply your prescriptions, and another man's to supply another man, and so on." He gained that physician, and he sends all his prescriptions to that store, where they are put up with officinal preparations made by the occupant of that store. He gained that business and the respect of that man by his independent course.

PROF. PROCTER.—My opinion in this matter is this. I think the apothecary is bound to go as near the literal directions of the physician as he possibly can, and if he cannot comply with the physician's order, let him refuse the prescriptions. There was a case in point recently. A physician ordered Caswell & Hazard's elixir of something or other; I tried at the stores to find it, but it was not to be found, and the prescription was inclosed in an envelope, and sent back with the statement that it could not be found. We subsequently saw the physician, and he changed the character of it. In reference to taking things into our own hands, sometimes physicians do as they do from ignorance, because they really want information, and it is no

more than right, that the apothecary should correct the physician, or give him a chance to be corrected; but to undertake to alter the prescription and substitute another article, in a case where the physician has tried the particular article before, and wants it, I think is hardly justifiable.

MR. SHINN.—I think the apothecary must be a law unto himself. You get a prescription at night for fluid extract of ergot of Dr. Squibb, or Squibb's ether, meanwhile if you refuse it, mother or child may die. If you can give as good an article, I think you are justified in such extreme cases.

MR. HANCOCK.—I think if the apothecary will exert his moral influence to overcome these evils, he will do a great deal of good. My course has been, if a prescription comes for one of Dr. Squibb's preparations, or any other preparation that is officinal, and it comes in a hurry, I supply it the best I can; but I see the physician and let him know what I have done. If the order came in the night, I would dispense my own fluid extract of ergot. I have prescriptions sometimes for Squibb's Fluid Extract of Ergot, and I give it. If I have a prescription for Dr. Moore's elixir, or Sharp & Dohme's, I give it, but I make it a point to see the physician and give him my opinion on the subject. I believe I have increased my prescription business by this course. Take another matter, sugar-coated pills; I have run them out in my trade because I tell the physician, "I will sugar-coat them myself." I don't do it as neatly, but they answer all practical purposes, and in that way I have the profit of making the pills and sugar-coating them. I can make them up and coat them in a very few minutes; they are always fresh, and there is not the difficulty of dissolving the crust which incloses the pills. If a physician orders a preparation that I cannot get, I tell him, and almost invariably they alter the prescription so as to meet the case. We have a large demand for Ellis's Citrate of Magnesia. When that is ordered, I tell the physician that I make it quite as good.

PROF. MOORE.—I have gone through all that, and I have no trouble now. The physicians all understand when they come to my place they get my preparations, and if a physician wishes to prescribe a particular preparation, he does not send it to me.

MR. HANCOCK.—I keep all these men's preparations.

Mr. Hessler, of Cleveland, obtained the floor, and said:

MR. HESSLER.—I wish to say, on behalf of the druggists of Cleveland, that there will be a boat ride this afternoon, leaving at two o'clock, or as near thereafter as you can get on board; also, that Mr. Myers, of the carriage committee, will be at the Kennard House, to assist those to carriages who want them. At your next convention, you can send a circular that you don't want anything of the kind; but it has gone so far we cannot remedy it.

The following amendment to the constitution was handed in, read, and, under the rules, laid over until the next annual meeting:

Resolved, That the following article be appended to the constitution, to wit:

ARTICLE V. There shall be set apart from the funds of the Association such sum as may be annually determined, for the creation of a sinking fund for the uses and benefit of the Association, and that such fund be invested by the Treasurer, as directed in Article IV.

Resolved, That Article V be called Article VI.

(Signed) CHAS. L. EBERLE.

On motion of the Business Committee, the Association adjourned till Friday at 9 o'clock A.M.

Special Session—Thursday Afternoon, September 5th.

TO THE PRESIDENT OF THE AMERICAN PHARMACEUTICAL ASSOCIATION:

WHEREAS, The proposed excursion on Lake Erie cannot come off to-day, owing to the inclemency of the weather, the undersigned members of the American Pharmaceutical Association respectfully propose that a special session be held this afternoon at 3 o'clock, for the transaction of such scientific business as may be brought before the Association.

JOHN M. MAISCH,
P. W. BEDFORD,
WM. WRIGHT, JR.,
JOS. P. REMINGTON,
JOS. L. LEMBERGER,
C. LEWIS DIEHL,
EMIL SCHEFFER,
E P. NICHOLS,
WILLIAM PROCTER, JR.,
THOS. DANIELS,
M. L. M. PEIXOTTO,
T. N. JAMIESON,
DAVID HAYS,
T. H. PATTERSON,
E. R. SQUIBB,
J. F. HANCOCK,
WM. NEERGAARD,
SOPH. SORENSEN,
C. W. HANCOCK,
WILLIAM MCINTYRE,
A. S. LANE.

CLEVELAND, OHIO, Sept. 5th, 1872.

NOTICE.

Pursuant to the above request, I herewith call a special scientific meeting of the American Pharmaceutical Association, to convene at 3 o'clock, Thursday afternoon, September 5th, 1872.

ALBERT E. EBERT,
President Am. Pharm. Association.

CLEVELAND, OHIO, Sept. 5th, 1872.

The Secretary read the above call for a special scientific meeting, which was duly opened at 3 o'clock, when the reading of papers was called for.

Query 42, on Glycerin and Pepsin, was continued to Mr. James R. Mercein, at his request.

A letter was read from Mr. Joseph Harrop, stating that continued ill health had prevented him from giving attention to the subject of Query 44, and asking a continuance of the same; on motion, the request was granted.

Mr. Robert J. Brown read a paper on Formulas for Unofficinal Preparations, and particularly for Elixirs, in answer to Query 45.

Mr. Benjamin Lillard read a paper on Tennessee Opium, and exhibited a sample of the same, the powder and the tincture made from it. The paper was, on motion, accepted and referred.

DR. SQUIBB.—I would like to ask whether one or two crops a year have been raised? It is stated that two crops may be as easily made per annum as one, particularly in our Southern climate.

MR. LILLARD.—Only one crop has been raised, but the plan adopted is to plant at intervals of two weeks, so the crop will be maturing during the summer.

Query 46, on the Use of Glycerin in Fluid Extracts, was continued to Mr. George Buck for another year.

Query 48 being called, Professor Judge rose and said:

PROF. JUDGE.—That paper is not finished, owing to the fact that, in examining the market, for the purpose of procuring sarsaparilla from which to make the fluid extract, I find it extremely difficult to get an article that I considered of any value whatever. It was not until late in the season, after examining twenty-five or more specimens, that I met with one that had any of the properties that I thought belonged to Honduras sarsaparilla. I have made experiments, but it takes time to settle the question whether such a fluid extract will deposit. I think I have met the point required in the preparation, but I want further time for the purpose of determining whether the precipitation will occur or not. Hasty conclusions, drawn from experiments, are of very little value. Time is required, and I ask to have the subject continued.

The subject was continued for another year. The same disposition was made of Query 49, in regard to which Dr. Nichols said:

DR. NICHOLS.—I have made a number of experiments, but, for the reason

just given by Professor Judge, I do not consider to have completed my examination of the subject. It takes more time than I anticipated, and although I have prepared a number of samples, I was not satisfied to bring them without further time. If the Association will allow me another year, I will endeavor to answer.

The Secretary read a paper on Sneezeweed, partially answering Query 51, and requested a continuance of the examination of its poisonous principle, which was granted.

THE SECRETARY.—I would also state I have written to Mr. Charles S. Brown, requesting him to send me a specimen of what they call sneezeweed near Jackson, Miss., and a bundle of plants has been received from him during the session of the Association which are identical with Dr. Gallaway's plant. I also asked him about the *Helenium tenuifolium*, about which he says in his letter that this plant also grows in Mississippi, but near Jackson is less frequent than the broader-leaved *autumnale*, which is regarded as the most poisonous of the two.

Query 52, on Sugar-coated Pills and other Proprietary Remedies was continued to Prof. J. Faris Moore for another year.

PROF. MOORE.—In regard to the query referred to me at the last meeting, I will state to the Association that I had that paper nearly completed, and three days before I left home, while working on the paper, I had an accidental fire, and among some other things it was burned up; therefore I am unable to produce it at this meeting. If it is the wish of the Association I shall be pleased to produce it at the next meeting.

Prof. Procter read a paper by Mr. George C. Close on the Use of Japan Wax in Pharmaceutical Preparations, in answer to Query 54; also one by Prof. Edward Parrish, on the Preliminary Educational Requirements of Apprentices.

The Secretary read a paper on Chinese Blistering Flies in answer to Query 56.

PROF. PROCTER.—I wish to occupy about a minute by stating that here is a specimen of the Colorado potato bug, and I wish to ask Mr. Maisch to ascertain if there is not some cantharidin in them. When picked up these bugs exude a yellow matter.

THE SECRETARY.—I will, if Mr. Saunders will send me some.

MR. SAUNDERS.—I can send you a bushel or two at any time. There might be some interesting disclosures made in regard to the species of meloe and

lytta found in this country if the members would collect them. I have seen a large species which came from beyond the Mississippi, just about the size of the imported species, which it resembles, and seems to have all the properties of the imported, while it has not the disadvantage of the small size of the atrata and vittata.

Prof. Procter read a paper on Commercial Seidlitz Powders, by Mr. Charles W. Grassly, in answer to Query 33.

PROF. PROCTER.—I have put up seidlitz powders for forty years, and I never measured one yet. They have always been weighed.

PROF. DIEHL.—There are so many little circumstances connected with the preparation of seidlitz powders that may cause inaccuracies even in the best regulated stores, that a paper of that sort may or may not be a correct indication of what is really done. As the writer says himself, a seidlitz powder may vary by having been damp and becoming dry, or having been dry and becoming damp. We all know that by far the largest number of druggists are in the habit of measuring their seidlitz powders. Now by measuring, inaccuracies will occur all the time, owing to the different state in which the Rochelle salt, the soda, or the tartaric acid may be when it is put up; consequently the powders may vary very much without any particular fault on the part of the druggist. It is only where they vary to any great extent that it is owing to fraud; of course every druggist that is conscientious will weigh his powders.

DR. SQUIBB.—The chief source of error I have met with, not only in this instance, but in many others, is in pharmacists carelessly buying a set of measures and neglecting to take the time and labor of testing them. A large proportion of these powders are probably put up from these convenient little measures, made and sold as seidlitz powder measures. The pharmacist buys those measures and puts up the powders innocently so far as the filling of the measures is concerned, but that he tries the measure is quite a different thing. I fancy that a large part of that report will strike exactly there, that that is the source of fallacy. I know that to be true in regard to the measures sold as seidlitz powder measures, particularly the graduated measures, and the pharmacist must submit to the responsibility of the use of a measure which is incorrect, if he does not choose to give the labor and time necessary to test it. I don't see how any of us can escape that responsibility. One point in that report was the composition of seidlitz mixture. The seidlitz mixture of the market is constantly said to be largely composed of bicarbonate of soda. That is a point that is of quite as much importance as the other; and here the pharmacist buys a seidlitz mixture and never tests it, but uses it as he buys it. If we are to go on in this way, if the pharmacist is to be satisfied with buying it at a fair or low price and evading his responsibility, he will run down his profession without fail.

PROF. DIEHL.—I have had considerable experience in superintending the manufacture of seidlitz powders formerly when I was connected with the Louisville Chemical Works. We manufactured a great many pharmaceutical

preparations, and also put up seidlitz powders. This experience enables me to state that the measures are not correct, even if they at one time did hold the correct quantity of the articles.

DR. SQUIBB.—Perhaps not one out of ten will hold the correct quantity.

PROF. DIEHL.—Suppose they do; suppose you have a seidlitz mixture, and graduate your measure according to that; the next day you get another lot in you will have to graduate again.

PROF. PROCTER.—I satisfied myself on that a long time ago.

MR. EBERLE.—I have known druggists to overlook that fact. They would make for themselves a graduated wooden measure, which after repeated trials would prove to be moderately correct. The attrition necessary to the measuring of these powders constantly would so wear the edges off as to cause them to be smaller, and if they were not frequently tested the powders would vary.

DR. SQUIBB.—My master had his seidlitz powders put up by measure, but he made us sift the powders. We made our own mixture, sifting it thoroughly, and every time we made a new batch we had to adjust our measure. It was made of a piece of lead-pipe, with a segment of cork in it, which was taken out or pushed in until the measure was right. That was tolerably correct. I don't mean to justify it, because I think the powders ought to be weighed.

DR. PILE.—Forty years ago it was the custom to put tartar emetic in and sell them under the name of improved seidlitz powders. The practice came from Bell's store, and in Hodgson's store, where I was first assistant, we always added one grain of tartarized antimony to each box, putting one-tenth of a grain in each powder. I don't know whether the custom has been continued since.

MR. RICE.—In making a collection of seidlitz powders for Mr. Grassly, I found some dealers had two kinds; one sold for five cents a dose, the other for ten. I was at a loss to know which to send as a specimen of seidlitz powders.

Mr. R. P. Smith, of the firm of Whitall, Tatem & Co., Philadelphia, was introduced to the meeting, which he addressed on the manufacture of glassware.

MR. SMITH.—It was suggested to me that some simple explanation as to the manufacture of glass would be very desirable and useful to those who are consumers of glass. I feel it a great privilege to be in a business in connection with purchasers who almost all of them are persons of education and refinement and of some scientific knowledge. I do not know any business that a manufacturer could be in that would bring him so much in contact with men of intelligence.

Glass is divided into green, and the lime, and the lead glassware. The green is the cheapest. It is prepared in open pots with only two or three materials, soda, a little salt, some lime, and sand. It is melted in large pots

holding from 500 to 2000 pounds of glass, in furnaces brought to great heat. It takes ten or fifteen days to heat them up, and when once heated the heat is continued for years. It requires five days for the fire to go out, and ten to heat the furnace. The glass is dipped out, about the consistency of thick molasses, and very much in the shape a retort would be were it straight instead of being bent on one end. It is picked up on the end of a pipe and worked round into shape by a blower, until it gets to be about the shape of a bulb, and then his mouth is applied to the pipe, the same process as twenty-five hundred years ago. There has not been any improvement in glassblowing and I don't know that there will be. The iron mould is opened, the bulb dropped in and the mould closes on it. The strongest glass is that which is in the shape in which it was originally blown. Of round bottles, with round edges, the percentage of breakage will be only half a per cent. A druggist told me to-day, he hardly found in bottles carefully blown with round edges, one quarter of one per cent. In proportion as bottles are square-edged, they will be more likely to break. Panels will likewise render bottles more fragile, the more so in proportion as these panels are deepened, because the glass has to be blown out into the corners of the moulds. A large dealer complained to me within a few days of a large invoice coming with a great many broken bottles. I called his attention to the fact that he always required his bottles to be blown out large at the foot. A dealer in Providence, R. I., getting 6000 gross of bottles a year, had only a breakage of one-half per cent. Bottles blown into irregular shapes, the glass being blown out unnecessarily into thin spaces, may occasion a breakage of six to ten per cent., if blown by the same dealers and out of the same pots. With the increase of wealth through the country, a very large part of the business is now turned into white glass. White glass is divided into lime glass, often called flint glass, and the lead flint glass. There is a difference of about 50 per cent. in the cost of lead glass made with red lead, and of lime glass. The lead glass has a somewhat more pearly color, which is more evident when empty than when filled, but the lime glass has lately been brought to such a condition of perfection, that many manufacturers say they would as lief have the best made lime glass, which is about half or two-thirds the cost of the lead glass, as to have the latter.

One or two hints as to what buyers should look out for in buying their glass. Glass, like a bridge, is only as strong as its weakest part. A bottle which ought to be ten or eleven ounces in weight, can be made thirteen or fourteen ounces and very weak. The glass can be put very heavily in the bottom, and when it is, it is apt to be light in the shoulders. Unless a great deal of skill is used the glass blows down to the bottom. The art of glassblowing is to make the shoulders quite as thick as the bottom. A person who has not noticed these things carefully and tested the strength and value of bottles, would be apt to think that a bottle that weighed heavier and looked heavier at the bottom, would be strong, but it is well to look at the shoulders, which are the weak places. The unskilful blower will throw his glass into the bottom of the bottle and leave the shoulders thin. You will find ten bottles broken in the shoulders to one in the bottom, and in selecting glass always look at the thinness of the glass on the shoulders. The bottom takes care of itself mostly

unless there is careless manufacture, which allows thin places in the corners, but mostly the strain and weak place is in the shoulders. Lime glass, of which I speak, costs about one-half more than the green glass; the lead glass costs about double the lime glass. A very large number of articles that have heretofore always been made in lead, as cologne bottles, are now made entirely of lime glass. For the finer articles there are two kinds of moulds used, the iron and the clay or wooden mould. The advantage of the latter (our shop furniture is made in the clay and wooden moulds), is when the blower has blown his bulb, he drops it into an open cylinder, and as he blows it he turns it round, so that there is no mark of the opening of the mould, and a better surface is obtained than is given by the iron mould. Bottles made in that way cost two-thirds more than the iron mould bottles, because it is a much more difficult process, and also because of the superior nicety of the glass. With a great deal of care, however, sometimes a bottle can be blown so nicely that I suppose an expert cannot tell the difference between the surface of one of the more expensive kind of bottles and the iron mould. The only thing by which that can be told is the slight line which is seen along the joint or edge where the mould opens and shuts. Very important in the manufacture of glassware, especially for druggists, is the character of the lip. When a bottle is made for an acid, upon the mouth of which there is a good deal of pressure in turning the stopper, it is desirable to have a large, square, sharp, heavy lip, so there will be little danger of chipping in handling, and so it can stand the pressure upon it in screwing in the stopper. The model of the prescription bottle is that of the Dutch bottle you see coming over sometimes, with a very wide, thin lip, like the brim of a summer hat. They will drop perfectly, extending as they do beyond the level of the side, but practically they are very objectionable to the druggist because they readily break in packing. These dropping lips as they are called cannot be carried in large quantities in bulk without suffering very severely in handling. The next best lip to that, however, is one in which the mouth flares just at the top. It must not flare down, or the corks will blow out, but just about one thirty-second of an inch below the lip, the mouth ought to begin to flare, so the cork will bind tightly between the shoulders, and above them it should turn out a little trumpet-shaped, so the liquid will turn out easily. If you attempt to drop from a bottle like this, the liquid will run out a distance and then run constantly over the edge. It is almost impossible to drop from a bottle made square, but with a bottle that is made flaring just at the mouth, as the liquid comes out it finds a gradual vent there and turns down. The great difficulty with dropping and pouring is the liquid trickling down. The lip, however, ought to be so sharp that the liquid may fall drop by drop and not run behind the lip.

Now a word about stoppers. My friend Squibb wants us to have all stoppers and all mouths made somewhat like a funnel, so the stopper can set in and will bind tight the whole length. The objection to that is the elegance of the bottles. For most of the cologne and ornamental bottles, the stoppers are made nearly straight, although the other plan would be better. To test a stopper examine it whether there are any bare places that are not ground; if so, there is a place where, when the bottle is turned upside down, it will gradu-

ally empty itself. If the stopper is ground all the way down, put it in the bottle and give it a fair degree of tightness, then see if it will work; if it gives in the least you may be sure, if there is a volatile substance in that bottle, it will evaporate, or if it is turned upside down it will sooner or later empty itself. Next wet the stopper, put it in loosely, and then work it about, to see if the liquid between the stopper and neck of the bottle can be made to touch evenly all round.

In conclusion, I will say a word about one or two of the establishments in this country, where they have taken all their workmen in as junior partners. A very wealthy man who acquired one or two million dollars, told me he began to make money fast, when instead of having clerks he took the young men in his establishment in with an interest. He said they doubled their earnings, and he nearly doubled his. During one of the strikes of our blowers, we obtained an account of the co-operative movements in the great manufacturing places in England and on the continent. Not having received any profits at all from our business the year previous, we were unable to advance the wages as they desired, so it was proposed to them that they should work for a certain sum, and at the end of the year, after settling up the business, and allowing a certain percentage upon the sales to the partners, all that remained should belong to the workmen, until they had received an increase of ten per cent on their wages; that is, a man that made $1200 would get $120 more. They acceded to it, and have gone in with that hearty *esprit du corps*, that joyous service that comes from the hope of something at the end of the year. They feel that they have an interest in the character of the establishment, and the single workmen especially, instead of feeling that their interest is separate from ours, and caring very little whether glass is wasted or not, feel a very great interest in the results of the business. They make from $10,000 to $12,000 annually extra, and we save that amount which we pay them in the extra care they give to our business. It has occurred to me, that it is really having several hundred junior partners always watching after our interests. If a man wastes the glass they warn him; if he will not heed that, they tell the standing committee of the blowers; if he does not heed them, they come to us, and we discharge him.

I believe this is to be the solution of the great subject looming up before us in the not distant future of the relation of wages to labor and capital to labor. I merely throw out the hint. I believe every drug store could be run most profitably upon the same arrangement. No matter what kind or how small the business; if the principal would give his subordinates a yearly interest, the amount paid them in excess of their wages would be saved. I believe in the saving to the establishment, in the hearty goodwill, and the joyous fraternal co-operation of those engaged in the business. I confess for myself that it is a pleasure to meet our workmen. I feel in some degree as I do in meeting our young junior partners. They are one with us in all our interests, and they enter into their labor most joyously. I thank you for the opportunity for this talk upon glass. I have not thrown stones as some have, but I have thrown out these hints hoping they will give you some ideas in regard to selecting and buying glass.

DR. SQUIBB.—I should like to inquire whether the gentleman has made any progress in getting for us a yellow instead of a blue glass. It is a subject that I have been urging them for several years to get rid of this worst of all colors, blue, and make us a yellow glass. The main trouble has been the dearness of the uranium necessary to produce a uniform yellow color in glass. I am led to believe if they used covered pots, they might produce an amber glass which would be uniform, and not have the great many shades which at present exist. I regard these blue bottles as the very worst of all bottles we can have for our chemical purposes, and the nearer we can get to canary orange the better. Some of our manufacturers have succeeded in getting this color, and some of our stores are being supplied with yellow furniture bottles, but the expense of uranium is great. I have gone to amber glass myself, and put up with the great variety of shades.

MR. SMITH.—One of our foremen is now in Europe, with that especial thing in charge. He has some information pointing towards a less expensive material.

The Local Committee of the Cleveland Pharmacists and Druggists, announced through the President, that an excursion on the Lake will take place at 2 o'clock P.M., on Friday, September 6th, on the Steamer R. N. Rice.

Dr. E. B. Squibb exhibited two glass percolators of a new design, one in actual operation, and read a paper on the same, which was, on motion, accepted and referred for publication.

After some discussion on this subject, the special session was, on motion, adjourned.

Fifth Regular Session.—Friday Morning, September 6th.

The meeting was called to order by President Ebert, at a quarter past nine o'clock.

The minutes of the fourth and special sessions were read by the Secretary and approved.

The Secretary read the report of the Committee on Stamp Tax, which was on motion of Dr. Squibb, accepted and referred for publication. The report is as follows:

TO THE AMERICAN PHARMACEUTICAL ASSOCIATION.

MR. PRESIDENT: The committee appointed to report on what action would best secure a remedy for the abuses resulting from the unintentional omissions in stamping medicines and perfumery, respectfully report,

1st. That for articles of home manufacture, the law as it stands is defective and unjust, in holding any person responsible for stamps except the manufacturer; he alone should be liable.

2d. That for articles of foreign manufacture, your committee are unable to see the policy of imposing stamp duties at all, inasmuch as a customs duty is already imposed, and if not sufficient, ought to be increased as much as necessary; this would save the government the expense of stamps, and would greatly relieve the dealer.

3d. Your committee would further advise the appointment of a committee to draft and present a petition to Congress, urging such a repeal or modification of the internal revenue law as would secure the objects embodied and recommended in the report. Respectfully submitted.

GEORGE BUCK,
Chairman.

Mr. Shinn, on behalf of the Committee on Photographic Album, exhibited the album presented at the second session.

MR. SHINN.—At the request of the chairman, I have obtained an album in Philadelphia, to hold two hundred faces. I have received about one hundred and forty-four. I would suggest that the committee be continued, or a new committee be appointed, to continue to receive faces for the album, and that it and the one received from England be placed in charge of the Permanent Secretary, to be carried to the various meetings of the Association.

The committee was, on motion, continued, and the album, together with the one received from Mr. Henry B. Brady, was placed in charge of the Secretary, to be placed on exhibition at every Annual Meeting.

The Business Committee presented the following resolution.

Resolved, That the Treasurer be authorized to honor the draft of the Local Secretary, Mr. H. C. Gaylord, for expenses incurred in making provision for the Twentieth Annual Meeting.

The resolution was passed.

The following resolution, presented by the same committee, was likewise agreed to.

Resolved, To request the Secretary of the Association to send copies of the new edition of the Pharmacopœia of the United States, to those Pharmaceutical Associations of foreign countries with whom he is in correspondence.

MR. MAISCH.—I second that motion, and would say, that I have received, as you will find noticed in the last volume of the Proceedings, a copy of the Norwegian Pharmacopœia, which is the property of the Association, and in the meantime, I have also received the new Swiss Pharmacopœia from the Association of Switzerland.

The following resolution was offered by Messrs. C. L. Diehl and P. W. Bedford, and passed.

Resolved, That a committee of three be appointed to select a reporter on the Progress of Pharmacy, who is to be appointed at the next annual meeting; and that this committee suggest such changes in the by-laws as may be necessary.

The following letter from Mr. H. W. Lincoln, referring to Query 25, was read:

BOSTON, August 28th, 1872.

TO THE COMMITTEE ON QUERIES OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

GENTS: During the month of January last, the writer received from your committee the following query, which had been referred to him by a vote of the Association at St. Louis.

"To what extent is the adulteration of butter carried, what substances are used as adulterants, and how is their presence detected?"

Coming from such a source, and not doubting its veracity, the writer commenced the work to collect material for the purpose of answering, and although he did not exactly see how the subject was much connected with the objects of the Association, nevertheless did not wish to decline any service to which he might be placed by them, and it being known to many members that he had lately acquired a residence in the country, it was a delicate way of considering the similarity between *Farm* and *Pharmacy*. While making the necessary investigation in the matter, the writer was told by one of the committee that he was quite sure that there was some mistake in the wording of the query, and advised the writer to desist from making any more research until more definite information had been received. Upon the receipt of the published Proceedings, on page 13 was found the query amended by the insertion of the two words, "of cacao," after "butter," altering very materially, it may be supposed, the matter to be reported upon. In volume xv, commencing on page 347, of the Proceedings of the Association, can be found an essay of more than ten pages, on the subject of Butter of Cacao, in which the writer, in the language of a prominent aspirant for Presidential honor, wrote "What I know about" Butter of Cacao. He felt then that he was trespassing upon the time of the Association in prolonging the paper to such a length, and, although five years have passed, the writer does not feel that he has

added a sufficient stock of information on the subject of interest enough to again intrude upon your time. Still, had it not been for the mistake above mentioned, the writer might have been able, at the beginning, to have continued his researches, and have offered a few more notes to his former efforts.

Respectfully yours,

HENRY W. LINCOLN.

Professor Procter read a paper, by Mr. Chas. J. Fredigke, on the Manufacture of Chemical and Pharmaceutical Preparations by Pharmacists, in answer to Query 16.

Dr. E. R. Squibb read three volunteer papers on Aloes, on Citrate of Bismuth and Ammonia, and on Triplex Pills of Dr. John W. Francis. The papers were, on motion, accepted and referred for publication.

Mr. Robert W. Gardner read a volunteer paper on, and exhibited a specimen of Syrup of Ferrous Nitrate, which was accepted and referred.

Mr. G. H. Schaefer read a paper, accompanied by a specimen, on Elixir of Mandrake, which was likewise referred.

Mr. William Saunders read a volunteer paper on Extract of Cannabis Indica, which was accepted and referred.

THE SECRETARY.—In the preliminary revision of the Pharmacopœia, the Philadelphia College of Pharmacy suggested substantially the same formula, and I believe it has been adopted in the forthcoming Pharmacopœia.

A paper on an improved Herb Press, written by Mr. Joseph Harrop, was read by Professor Procter, accepted and referred. On motion of Mr. Shinn, the Executive Committee was authorized to illustrate this paper, if deemed proper.

The report of the Committee on the next Annual Meeting being called for, Mr. R. J. Brown read it as follows:

The committee appointed to select the next place for holding our annual meeting, beg leave to say that we recommend the city of Louisville, Ky.

Would also acknowledge that we have received pressing invitations from Pittsburg, Nashville, and Richmond.

R. J. BROWN,
CHAS. L. EBERLE,
H. J. MENNINGER.

Mr. Brown also read the resolution of the Louisville College of Pharmacy, inviting the Association to meet in that city, when, on motion of Mr. Osborne, the report was accepted.

LOUISVILLE, KY., Aug. 26th, 1872.

TO THE PRESIDENT OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, CLEVELAND, OHIO, GREETING.

DEAR SIR: At the second annual meeting of the Louisville College of Pharmacy, held Tuesday, August 13th, 1872, on motion, it was resolved, that the American Pharmaceutical Association be invited to hold its next annual meeting in our city; and, in case of acceptance, the Association will be received and entertained with genuine old Kentucky hospitality.

Respectfully, for the College,

FRED. C. MILLER,
Recording Secretary.

MR. SAUNDERS.—I move that the report be adopted.

MR. OSBORNE.—I move that the report be amended by substituting Nashville as the place recommended.

PROF. MOORE.—The original motion to adopt has not been seconded, and therefore you cannot amend the motion until it has been seconded.

PROF. PROCTER.—Can we not look upon that as a suggestion of the committee, and have not the members in all propriety the right to make other suggestions, or must that report be settled before we go on.

MR. SAUNDERS.—It can be amended.

THE PRESIDENT.—Is the original motion to adopt the report seconded?

SEVERAL MEMBERS.—I second the motion.

MR. OSBORNE.—I will state my reasons for offering the amendment. It has been proposed at several meetings of the Association that we should hold a meeting in a Southern State. The desirability of so doing is apparent to you all. We have now held twenty meetings, and not one has been in a Southern State. We know very well that we have many active members in the South. To be sure, they are few in number, but they are zealous, and contribute as much to the general interest of the Association and will do as much towards furthering its interests as any in the country. There is not and will not be a time, in my opinion, in the history of this Association when such a move would be more appropriate and work out better results. It is argued by some that the city of Louisville is a Southern city, but that is undoubtedly a mistake. It is regarded as a Western city.

PROF. DIEHL.—I think it is very proper to put in a remark here. When we were in St. Louis last year, Louisville was a Southern city because we wanted to go West or North. Now as we want to go South, all at once Louisville is a Western city. It is a Western and a Southern city.

MR. OSBORNE.—It is Western in all its characteristic features. In addition to that I might state that Nashville presents all the requisites for meeting. It is a place of sufficient size, and we have pressing invitations from the druggists of that city and from the Tennessee College of Pharmacy. My friend, Mr. Lillard, unfortunately cannot be here to-day, but he wished me to represent him in urging the claims of Nashville. It is quite evident we will receive a hearty reception there. Everything is qualified to make our meeting pleasant. As a place of meeting they offer us the Hall of Representatives. The Capitol is new, and the hall is excellently arranged. I sincerely hope my friends will take the same view of it that I do, and recognize the claims of a Southern city in a Southern State, and looking at the general interest of the Association, select that as the place of meeting.

MR. GORDON.—I agree with the gentleman that we ought to go further south than Louisville. For the last three years we have held meetings accessible to the people of that section, one in Chicago, one in St. Louis, and one here, and I think it is time that we go further south. It strikes me that Nashville is as short a distance as we ought to reach, and probably as far. When I came I had two points in view, Nashville and Richmond. There seems to be a strong desire to go to Richmond, and that being the case it would be satisfactory to me. So far as Louisville is concerned, I would be glad to go for my own convenience. It would be more convenient than any other point, but that is not what we have to look to; we have to look at the interests of the Association.

PROF. PROCTER.—We have had three meetings in the West since 1869. It is time that we had a meeting in one of the Atlantic States. It is also high time that we had a meeting at the South if we wish to restore the old feeling among the druggists North and South, and in view of that it occurred to many, and among the rest myself, if we could have the next meeting at Richmond at a time when it was suitable to go there, it would be a very desirable point. At all events, if we are to meet in the South we should do it, and not stay on the border. If we should go West in the South, I should greatly prefer Nashville, not because our friends in Louisville will not do everything that Nashville will, and perhaps more, but if we go to Nashville we shall draw from a larger extent of the Southern country. The Northern members will go wherever the meeting may be held. If it is possible, let us try to keep east of the Alleghanies, take Richmond, and bring in our old members. I offer the name of Richmond as a substitute.

PROF. HICKLING.—I was going to move the substitution of the name of Washington as neutral ground, where we can meet and settle this matter, but I am so impressed with the idea of the gentleman that Richmond is the place that I am willing to join in the cry, "On to Richmond!"

MR. MENNINGER.—I would like to inquire whether we have any active members at Richmond.

THE SECRETARY.—We have three.

PROF. SANDER.—I am quite confident that the claims the East has upon us are justified, and that after having met in the Western part of the country,

we ought to meet somewhere in the East. It was the opinion of the Eastern members that we ought to go somewhere Northeast, because we had not been there for some time, but it was urged that the South had more claims upon us because they had fewer members than the North and the Northeast, where we have plenty. It strikes me, under present circumstances, as Mr. Diehl remarked, that Louisville, belonging to the State of Kentucky, lying south of the southern border of Ohio, is a Southern city. Nashville is only one hundred miles from Louisville, which is no distance at present. If we want to go South we ought to go to some point in the South where all the gentlemen from the South that wish to join the Association can easily get access. Now our members from Kentucky are eighteen, from Louisville and Covington only. There are several large cities in the State where we have not one single member, Frankfort, Lexington, Bowling Green, &c. Besides, if we glance over towards the other side, to Ohio and Illinois, we find that Southern Illinois has only one or two members, Southern Indiana only two members, and Southern Ohio, with the exception of Cincinnati, not a single one. There is a large country, largely settled. Louisville is accessible from the North and South, only one hundred miles or a ride of five or six hours from Nashville. There are nine members in Memphis, one in Nashville, and one in Bowling Green. It may be that more have joined this year, but heretofore we have had only nine. The other Southern States are not so densely populated as Kentucky, especially for a hundred miles round Louisville, and we can expect that all the gentlemen who take an interest in our Association will come to Louisville and greet us. We see now that the Southern men themselves take Louisville as their representative city; therefore, I think that Louisville is the place. Besides, we have a nucleus of members in Louisville who will do their utmost to rouse the whole South, and I am sure if we go to Louisville we will get, instead of one hundred and seven members, as in St. Louis, one hundred and fifty from the South in the neighborhood of Louisville.

Mr. Eberle.—We heard the claims of various sections in relation to the place of meeting. That of Louisville, in the opinion of the committee, was the strongest, partly from the fact that they have there a college which is somewhat lingering and needs the moral support of this Association, and partly because we believed that the district in the neighborhood of Louisville could be well culled by meeting there. We recommended it also on the ground of its accessibility. If our friends from Nashville, who are young in the enterprise, want the uses of the Association, they can go to Louisville easily. There were other considerations that tended us strongly towards Louisville as the place of meeting. The selection was unanimous, although the members were divided in their personal feeling on the subject.

Mr. Osborne.—What Mr. Sander has said is correct, but the accessibility belongs equally to Nashville. Why cannot the men from St. Louis, Louisville, and Ohio come to Nashville? With our Southern members the matter of expense is a consideration, while for our friends from the far East and West the railroad transportation from distant points West to Eastern markets is exactly the same by Nashville as by Louisville. I think the claims of Louisville are not superior at all, and so far as the nucleus in Louisville is

concerned, it is quite evident we can expect the same in Nashville. As I said before, I am unfortunately the only representative of my State here, but speaking as a Southern man, Nashville is a Southern city, while Louisville is Western in all its characteristic features. I hope our friends will not see any claims on the part of Louisville superior to those I urge in favor of Nashville.

PROF. PROCTER.—I have just received information from a friend who is here, who has been in communication with members and others in Richmond, and from what he states I understand that the Richmond people have canvassed the idea of having the next meeting there, and were of the opinion that the time had not yet arrived to go there. Now, although with my own views about the matter, I would still advocate going there as we came here, without asking, still I think the Association ought to know that fact.

MR. GORDON.—My partiality would be for Louisville so far as convenience is concerned, but we must not look to our own convenience. We must take the places where we can do the greatest amount of good, and if we cannot draw the Southern people to Louisville as readily as to Nashville, then we ought to go to Nashville.

PROF. DIEHL.—If the Association will recollect, last year in open meeting the question was propounded to Mr. Ash, of Jackson, Miss., to state which point in his opinion would be the most eligible point for the people of the South, and he stated in answer to that that Louisville was the place. In reference to the remark that Mr. Gordon made, that Nashville would probably draw more people than Louisville, I will say that not a single druggist from the South, probably, will come to Nashville without subsequently coming to Louisville, even if we meet in the former city.

MR. WRIGHT.—This Association seems to be composed just now of Northern men with Southern proclivities. Why not go to the emporium, to the representative city of the South, New Orleans. I am well aware that there are some reasons why we should not go there, but I think New Orleans is a place we ought to go to sooner or later, and sooner rather than later.

DR. MENNINGER.—As a member of the committee and a Southern member of the Association, I would like to say one word before this question is put. My preferences were for Richmond decidedly as a member of the committee, but I understood that we had no very active member there, and therefore it would be rather difficult for us to hold a meeting there. With that view I coincided with the other members of the committee in recommending Louisville as the next best city, but if in the opinion of the members we can have an equally profitable meeting at Richmond by our own exertions, without regard to the local members, I must confess, notwithstanding my signature to the report, I should prefer Richmond. It is more accessible than any other city. I cannot reach Louisville or Nashville without riding sixty or seventy miles in a stage. I have to cross the Blue Ridge in a stage, come to Baltimore, and then take the same route you do. Richmond is very accessible to all the members from the Atlantic, Gulf, and Southern States.

The question was taken on the second amendment offered

by Professor Procter, to substitute the city of Richmond, Virginia, for Louisville, Kentucky. A division being called for, 40 members were found to vote in the affirmative, and 33 in the negative. The vote was then taken on the adoption of the report as amended, and was decided in favor of it.

PROF. DIEHL.—Now that this matter seems to be settled, I want to explain to the Association why we were anxious that they should go to Louisville. Louisville has of late years shown a continually increasing desire to unite itself with the American Pharmaceutical Association. It has now extended over a period of perhaps seven years, previous to which time there was only a single member in Louisville. The members who affiliated with this Association started a College of Pharmacy, with the expectation that after they started it, the American Pharmaceutical Association would morally assist it. The action that has been taken to-day will preclude us for the next four or five, or even six years, from having a meeting of the Association at Louisville, and as a consequence, the institution that the druggists of Louisville have recently started, will suffer from the omission of the Association to meet in Louisville during that time. We have made a good start in Louisville; we are not yet become lukewarm in the matter, but we apprehend that having made such a good start, the time has come when there will be a little lukewarmness in the college, and it was expected that the Association would come and aid us in the enterprise.

DR. MENNINGER.—I move that in the event of the Local Secretary to be elected being prevented from acting, the Executive Committee be authorized to make all the necessary arrangements in his stead.

MR. LEIS.—I understand that the members at Richmond have had the subject of our meeting under discussion, and have concluded that they cannot receive us as well as they could at Louisville, and therefore I move that the vote be reconsidered.

THE SECRETARY.—Precisely the same thing was urged last year at St. Louis, in opposition to meeting at Cleveland, and a motion was made subsequently to reconsider the vote, which placed the 20th meeting at Cleveland. We all voted against it, and I hope this Association will do it again. The Association has resolved once to go there, and I am pretty sure we can do a great deal of good in Richmond. Let us put our shoulders to the wheel, and let us say the next meeting shall be a success and it will be.

MR. GORDON.—I should hardly think it is fair now to reconsider this vote, because a great many of our members have left the room, thinking the matter was settled.

PROF. SANDER.—I heartily indorse the motion for reconsideration, because I know from members who voted for Richmond, that they did not know that the Richmond members had sent word that they were not ready to receive us.

PROF. PROCTER.—That was last year. The information was given to me

without explanation, but since the vote, the member says, that information was sent last year to St. Louis; nothing has come from them this year.

PROF. DIEHL.—It seems to me that the Association only consults its own interest, and not the interests of the institutions which have sprung from it, of which I claim that the Louisville College is one. It says, "We will go to Richmond, because we can make a good meeting," irrespective of whether they can do good to Louisville and that portion of the South. I have some feeling on the subject, and am hardly fit to speak upon the subject now.

MR. LEIS.—As the subject has changed somewhat in aspect, if it be the wish of the Association, I will withdraw my motion.

The motion of Mr. Leis was withdrawn, and Dr. Menninger's motion was seconded and carried.

It was then moved by Mr. Eberle, and carried, that the next annual meeting be held on the third Tuesday of September, 1873.

The Business Committee offered the following resolution, which was carried:

Resolved, That all queries not otherwise disposed of, be dropped from the list, and that the members generally be recommended to investigate the subjects suggested in those queries, and voluntarily report thereon at the next annual meeting.

This action disposes of the following queries of last year's list:

3. How can the Gum Resins, like those of assafœtida and ammoniac, be prepared and kept in stock, so as to render the use of a mortar unnecessary in dispensing them in mixtures?

5. What is the true value, as a vesicant, of the so-called Cantharidate of Potassa? Is it capable of affording a more eligible application than the Ceratum Cantharidis?

6. An essay on Neatsfoot Oil, its sources, mode of preparation, characteristics, and adulterations.

7. Do Pumpkin Seeds owe their medicinal properties to a fixed oil, or to another active principle?

8. What is the best process for preparing pills of Phosphorus, and protecting them from oxidation?

11. What is the best test process to determine the medicinal value of Rhubarb Root?

14. Is there an eligible process for making a concentrated pulverulent

preparation of Senna, fairly representing its active properties and embracing the Cathartic Acid of Dragendorff and Kubly? And will the association of an alkaline salt modify its griping qualities as a purgative?

17. What is the comparative quality of the different brands of Extract of Liquorice of the market?

18. Effervescent Granular Salts are coming largely into use. Are they generally what their labels represent them to be? What manipulation is necessary to secure the best results, and what are the best proportions of the ingredients?

21. What is the source and what is the character of the so-called Burgundy Pitch of the American market?

22. To what principle or principles does Cimicifuga Racemosa owe its medicinal properties? Can they be isolated, and does the Cimicifugin (so-called) represent the medicinal virtues of the Root?

27. What is the quality of commercial Copaiba, and how may adulterations and deterioration be detected?

29. Can the swimming-bladders of the fish of the American lakes be utilized as Isinglass? What amount is it estimated could be furnished from the fisheries of the Northwestern lakes?

30. What is the quality of Iron by Hydrogen found in the market?

34. Powdered Blue Pill of the market. How is it prepared, and how does it compare in strength with the officinal Blue Mass?

35. What is the relative digestive power of the different powdered Pepsins and preparations thereof in the market?

37. What is the comparative quality of the different brands of Bicarbonate of Soda in the American market?

40. Can the Vegetable Narcotic Extracts be prepared in the form of powder, and thereby secure uniform therapeutical effects?

43. Of what value is Malt Extract (Saccharine) as medicine or nutrition? Does Grape Sugar, Starch, or Dextrin possess the same merit?

47. What is the state of purity of commercial Santonin obtained from various sources?

50. Glucose. This substance is now very abundant in the market. What use can be made of it in pharmacy?

53. Spirit of Nitrous Ether varies greatly as obtained from different manufacturers. By what practical process may the proportion of Nitrous Ether in the Spirit be estimated, and is the alcohol strength of the United States Pharmacopœia a proper one?

57. What proportion of mercury is contained in the Blue Pill of the market?

58. What is the quality of Beeswax of the market, and what are the best means of detecting its adulterations?

59. To what does Poke Root (Phytolaccæ Radix) owe its activity? Can the active principle be isolated?

60. Ammonio-citrate of bismuth loses its solubility, to a great extent, by age. Can any other salt of bismuth replace this in the desirable quality of solubility, and at the same time be more stable in composition?

64. What quantity of Castor Oil is produced annually in the United States, and to what extent is the American oil put up in packages and sold in imitation of the East India oil?

65. To what extent may traffic in Fancy Goods, Liquors, and Cigars be regarded as compatible with legitimate Pharmacy?

67. Granulated Effervescing Compounds are sold by druggists, under popular names, and the demand for them is constantly increasing, yet these compounds are known to be different from the preparations represented by the labels. Give a practical process for the preparation of such as are believed to possess merit.

69. What is the comparative value of Carbolic Acid and other disinfectants and antiseptics? Which are the best disinfectants for general use?

70. Prof. Wormley has isolated two active principles from the yellow Jessamine (Gelsemium sempervirens); one of which he calls Gelseminia and the other Gelseminic acid. How may these principles be isolated in quantity? What is the antidote to the poisonous effects of this drug?

71. Is the ordinary commercial Alcohol of the market sufficiently free from fusel or grain oil for pharmaceutical use?

72. Eupatorium perfoliatum. An examination of its proximate principles, especially that to which its bitterness is due.

73. Pepsin is valued for its medicinal power in connection with disordered digestion. What are the best sources of, and what is the most available process for the preparation of it for medicinal use and for the cuisine?

The report of the Committee on Papers and Queries was again read, accepted, and referred for publication.

The Committee on Papers and Queries report the following as having been accepted for the meeting of 1873, viz.:

1. Can a permanently flexible Gelatine Plaster be prepared by some addition to the isinglass used, which will prevent the tendency of the plaster to curl and irritate the skin mechanically?

Accepted by Henry N. Rittenhouse, of Philadelphia.

2. Does the root of Frazera Walteri contain Berberina?

Accepted by T. L. A. Greve, of Cincinnati, O.

3. What is the true character of the Liriodendrin of Prof. Emmet, and what value has it as a medicinal agent?

For general acceptance.

4. An essay on the culture of the Lemon abroad and within the United States, on its products contributed to commerce, and more especially the commercial sources, modes of preparation, and the best plan of preserving the volatile oil.

For general acceptance.

5. The use of Paper Pulp, stirred in a turbid aqueous liquid before pouring it on a muslin or flannel cloth, as a means of filtration, was suggested by M. Desmarets, and is often useful in liquids difficult to manage in ordinary filters. What is the most practicable manner of preparing the pulp and employing it for this purpose, with some examples of its application?

Accepted by J. F. Judge, of Cincinnati, O.

6. What are the best methods of dispensing Phosphorus in liquid mixtures and in pills so as to protect it from oxidation?

Accepted by Wm. Neergaard, of New York.

7. "Sapo Viridis" vel "Sapo Mollis" is sometimes prescribed. What is the easiest plan of making it from olive oil and liq. potassæ?

Accepted by P. Fred. Lehlbach, New York.

8. What influence has the abundant use of Wood Ashes as a manure to the Grape on the proportion of cream of tartar it yields?

For general acceptance.

9. What is the comparative medicinal value of Wild (field) Garlic of the United States, and the Allium sativum, and is alcohol (as recommended by A. P. Sharp) the best agent for preserving garlic; if so, how can it be used so as to leave the appearance of the bulb unchanged?

Accepted by Wallace Procter, Philadelphia.

10. Can Balsam of Tolu be rendered emulsionizable like copaiba?

Accepted by P. W. Bedford, New York.

11. The statistics of the American Bromine production.

Accepted by Dr. S. S. Garrigues, East Saginaw, Mich.

12. What merit has Petroleum Benzin as a solvent for the extraction of oleo-resinous drugs like buchu, chenopodium, &c.?

Accepted by Joseph P. Remington, Philadelphia.

13. Does not the acknowledged value of Colchicum, and its liability to vary in activity, suggest the preparation of a working formula for medicinal colchicia as a new pharmaceutical?

Accepted by Ottmar Eberbach, Ann Arbor, Mich.

14. Is the imported Male Fern derived from the same plant as that collected here, and will the latter yield as much oleo-resin?

For general acceptance.

15. Can the proportion of Sugar and Honey be improved in the officinal process for pil. ferri carbonatis?

Accepted by Edward D. Chipman, Frankford, Philadelphia.

16. What is the best fluid preparation of Tartrate of Iron and Potassa for dispensing that will keep well?

Accepted by C. Hohly, Toledo, Ohio.

17. What is the origin or source of the Sulphur found in commercial "iron by hydrogen?" What are the practical difficulties in avoiding its presence, and how may they be best overcome?

Accepted by J. F. Judge, Cincinnati, Ohio.

18. What is the actual value of Orange-colored Window Glass as a means of preventing the chemical action of light on volatile oils?

Accepted by Wm. Procter, Jr., Philadelphia.

19. What is the influence of Direct Sunlight on Fixed Oils when exposed in sealed glass bottles, and is such exposure injurious?

Accepted by Prof. J. F. Moore, Baltimore.

20. Cannot an improvement be effected in the material and workmanship of cheap Ointment Boxes?

For general acceptance.

21. What is the correct time to collect the leaves of biennial plants like Lobelia, Hyoscyamus, and Digitalis?

Accepted by Prof. John M. Maisch, Philadelphia.

22. An essay on the chemical history, qualities, and uses of the Catalpa tree (Catalpa cordifolia).

For general acceptance.

23. Is Chiccory Root used as an adulteration or substitution for Taraxacum in American commerce?

Accepted by L. M. Rice, New York.

24. Is there no better method of preparing Cucumber Ointment than that now in use by heating the juice with fats?

Accepted by William Procter, Jr., Philadelphia.

25. A chemical essay on the White Locust (Robinia pseudo-acacia) root, wood, and flowers.

For general acceptance.

26. Can any improvement be suggested in Graduated Measures by which greater uniformity can be attained?

Accepted by Dr. W. H. Pile, Philadelphia.

27. An essay, suggestive and critical, on the best plan of arranging and managing the store-rooms and cellar of a well-conducted dispensing store.

Accepted by J. F. Hancock, Baltimore.

28. An essay, suggestive and critical, on labelling shop furniture, stock-bottles, and vials, in view of permanence, regularity, and safety; also a label case to facilitate the finding of same.

Accepted by Geo. H. Schafer, Fort Madison, Iowa.

29. An essay on Cleanliness as a pharmaceutical virtue, and specially on the means and methods of cleaning bottles, mortars, and vessels of all kinds in daily or occasional use.

Accepted by J. M. Ayers, Cincinnati, Ohio.

30. What shall I read, and where shall I begin? An essay in reply to this constantly recurring query of beginners, who are confused by the mass of books presented to them as the source of knowledge they need.

Accepted by Wm. Procter, Jr., Philadelphia.

31. An essay on what are Poisons in Pharmacy, and what plan is most efficient in guarding them from improper use *in the shop.*

Accepted by Charles L. Eberle, Philadelphia.

32. An essay on the insect enemies of drugs, on the best means of protecting sound drugs from their ravages, and on the means of destroying them when already in drugs?

Accepted by Wm. Saunders, London, Ontario.

33. Is Sarsaparilla altered in its sensible properties and injured in its medicinal qualities by the heat of a water or steam bath?

Accepted by J. F. Judge, Cincinnati, Ohio.

34. When Chloral is accurately hydrated it makes a milky solution in water, but when either under-hydrated or over-hydrated it yields a clear solution. What is the cause of this difference, and why does the time required for a solution to become clear vary from a few minutes to several hours?

Accepted by C. Lewis Diehl, Louisville, Ky.

35. The present strength of Alcohol directed by the U. S. Pharmacopœia for Tincture of Columbo is improper. What is the best strength of Alcohol to exhaust Columbo for tincture and fluid extracts?

Accepted by Charles L. Eberle, Philadelphia.

36. What is the comparative weight of Seeds and Capsules of the several commercial varieties of Cardamoms, and what is the comparative aromatic value of the separated seeds?

Accepted by J. Newport Potts, Baltimore.

37. Should not Aromatic Powder (U. S. P.) be made by powdering the crude ingredients all together, to facilitate pulverization?

Accepted by Joseph L. Lemberger, Lebanon, Pa.

38. How do the Subnitrate and Subcarbonate of Bismuth of commerce compare with the standard of the U. S. Pharmacopœia?

Accepted by Thomas F. Main, New York.

39. How does the Prussic Acid for medicinal use, made by the several chemists, correspond in strength with the requirements of the U. S. Pharmacopœia?

Accepted by Frank S. Jones, New York.

40. What is the purity and state of hydration of the Burnt Alum found in the market, and is it prepared from Ammonia or Potassa Alum?

Accepted by Thomas Starr, New York.

41. What is the commercial source of the Aconitia found in the American drug market, and does it correspond with the English or German in activity?

For general acceptance.

42. What is the purity of commercial Tartaric Acid and what is the normal percentage of moisture?

Accepted by Henry J. Rose, Toronto, Canada.

43. What is the degrees of strength and the purity of the so-called chemically pure Mineral Acids of the different manufacturers?

Accepted by P. W. Bedford, New York.

44. A solution of a Salt of Quinia for hypodermic use is much needed.

It is stated to be comparatively easy to prevent the crystallization of quinia salts, by the presence of a very small proportion of many other salts, such as chloride of sodium, chloride of ammonium, &c.

Solutions for hypodermic use should not be caustic nor very irritating, and should contain a proportion of quinia equivalent to thirty grains of the ordinary sulphate of quinia in each fluid drachm. Such solutions when obtained can easily be protected from change by very small quantities of carbolic acid.

Query: To obtain a solution of a Salt of Quinia adapted to hypodermic use?

Accepted by A. P. Sharp.

45. Solutions of Salts of Atropia, Strychnia, and other alkaloids for medicinal use are liable to be spoiled by the growth of microscopic organisms. This is prevented by the addition of solution of carbolic acid.

Query: How small a proportion of Carbolic Acid will protect such solutions from change?

Accepted for Edward H. Squibb by E. R. Squibb.

46. When a strip of paper moistened with water of ammonia is held near the mouth of a bottle of chloral, white fumes are generally noticeable, particularly in warm weather, on close observation. Often the fumes are so white as to be easily seen, and sometimes on a very damp and hot day they are visible without the use of ammonia.

Query: Is this an evidence of the decomposition of Chloral, varying only in amount or degree from that decomposition which is evident when the fumes are very copious and attended with the smell of chlorous and hypochlorous acids, and what are the common accidents which determine the decomposition of chloral?

Accepted by Prof. Maisch.

47. On the best method of assaying Cantharides and their preparations for Cantharidin?

Accepted by John M. Maisch.

Respectfully submitted on behalf of the Committee,

T. DOLIBER,
J. W. MILLS,
W. PROCTER, JR.,
By William Procter, Jr.

Dr. Menninger nominated Mr. Thomas H. Hazard, of Richmond, Local Secretary for the ensuing year; and he was elected by a *viva voce* vote.

Dr. Tufts presented the report of the Committee on Representative Delegations as follows:

Your committee to whom was referred the subject of admitting delegates to the meetings of this Association, have attended to their duty, and respectfully report:

While it is their intention to encourage pharmaceutical education, they consider this Association should be composed of local pharmaceutical organizations, composed of pharmacists, and that it is not a convention of teaching colleges.

And while they do not think that a school or college represented by one pharmacist could be admitted, they see no reason why they should not be represented in the convention of teaching colleges. They recommend the following amendment of the constitution: amend Article VI, making it to read, "All local organizations of pharmacists."

J. FARIS MOORE,
CHARLES A. TUFTS,
For the committee.

The report was accepted, and on motion, action thereon was deferred until the first session of the next Annual Meeting.

The following amendment to the by-laws was offered, with the recommendation to lay it over until the first session of the next Annual Meeting.

In order to have the Committee on Specimens appointed at the first meeting, the following change in the by-laws is proposed.

Remove Section 8, of Article III, in Chapter VII, so as to follow Section 8, in Article II, of same chapter.

Mr. P. W. Bedford offered the following, which was adopted.

Resolved, That our hearty thanks are due to the Cleveland pharmacists and druggists, and their friends, for the kindness shown us at this Annual Meeting.

The following resolution, offered by Mr. Lemberger, was likewise agreed to.

Resolved, That the thanks of this Association are due, and are hereby expressed to Mr. James Mackintosh, Signal Officer in this city, for his kindness in furnishing us with daily reports, charts, statistics, &c.

Dr. Menninger read the report of the Committee on Specimens, which was accepted, and referred for publication.

The Chair appointed the following committee to carry out the suggestions contained in the report of the Committee on Stamp Tax: Messrs. Charles H. Dalrymple, Morristown, N. J.; J. Faris Moore, Baltimore, and William Hegeman, New York.

The following resolution was offered through the Business Committee, and passed.

Resolved, That a committee of five be appointed by the President, to take into consideration the subject of elixirs and similar unofficinal preparations, in all its bearings upon Pharmacy, and if deemed proper, to report suitable formulas for the guidance of the members of this Association.

The Chair appointed on this committee Messrs. John F. Hancock, Baltimore; James G. Steele, San Francisco; Hampden Osborne, Columbus, Miss.; Robert J. Brown, Leavenworth, and Ottmar Eberbach, Ann Arbor, Mich.

Mr. Eberle, for the Executive Committee, reported the following applications for membership, the applicants having complied with the requirements of the by-laws.

James E. Lilly, Evansville, Ind.
Geo. H. Lohman, Kendallville, Ind.
J. H. Greene, South Amboy, N. J.
A. B. Chadwick, Brooklyn, N. Y.
August W. Bock, Cleveland, O.
Hugo Hensch, " "
Samuel T. Hensel, Springfield, O.
A. L. Snyder, M.D., Bryan, O.

Messrs. T. H. Patterson and C. C. Hohly, acting as tellers, reported their unanimous election.

The following communication was read by the Executive Committee:

TO THE AMERICAN PHARMACEUTICAL ASSOCIATION:

The undersigned members respectfully propose the following gentlemen for election as honorary members of this Association:

Prof. Robert Bentley, London, England.
Mr. Stanislas Martin, Paris, France.

J. F. JUDGE.
ALBERT E. EBERT.
PAUL BALLUFF.
E. R. SQUIBB.
C. LEWIS DIEHL.
J. FARIS MOORE.
GEORGE W. SLOAN.
P. W. BEDFORD.
A. MAYELL.
JOEL S. ORNE.
H. J. MENNINGER.
J. M. MAISCH.
CHARLES A. TUFTS.
CHARLES L. EBERLE.

The tellers, Messrs. Patterson and Hohly, reported the unanimous election of both gentlemen.

On motion of the Business Committee, the thanks of the Association were tendered to the press of Cleveland for the interest taken in our Proceedings.

On motion of Mr. Eberle the reading of the minutes, except of the last session, was dispensed with.

The President announced the following Committee on the Editorship of the Report on the Progress of Pharmacy: Prof. Wm. Procter, Jr., Philadelphia; Dr. E. R. Squibb, Brooklyn, and E. H. Sargent, Chicago.

The minutes of the last session were read by the Secretary, and approved, after which, on motion, the Association adjourned to meet again in the city of Richmond, Va., on the third Tuesday of September, 1873, at 3 o'clock, P.M.

On their way to Cleveland quite a party visited Watkins Glen, Rochester, and Niagara Falls. At the latter place most of the members from the Atlantic States met, and to the number of about sixty, including ladies, spent here Sunday, September 1st. About one-half of this number next day chartered a palace car from Buffalo to Cleveland, others going there by steamer. The majority of the visiting members stopped at the Kennard House, which had been selected by the Cleveland druggists and pharmacists as the headquarters of the Association during the Twentieth Annual Meeting.

In Cleveland, the visiting members were kindly and hospitably received, the members of the various Local Committees devoting much of their time to direct and accompany the visitors to the beautiful avenues, the numerous industrial establishments, and other interesting localities of the city.

On Wednesday afternoon, Mr. T. T. Sweeney took an excellent photograph of the members and ladies, grouped to the number of one hundred and thirty-six, in front of the Central Rink. On the evening of the same day, the visitors were entertained at the Rink with a promenade concert, and

greeted there by many citizens of Cleveland. The stormy weather prevented the excursion on Lake Erie contemplated for Thursday afternoon, and necessitated its postponement until Friday, when it was enjoyed by many members, and a large number of ladies and gentlemen from Cleveland.

The majority of the visitors left for their homes on Friday, impressed with the recollection of the pleasant days spent at the twentieth meeting of the Association.

JOHN M. MAISCH,
Permanent Secretary.

REPORTS OF COMMITTEES.

REPORT OF THE COMMITTEE ON THE DRUG MARKET,

For the Fiscal Year ending June 30th, 1872.

THE drug trade of the past two years has been more generally prosperous than in any previous one succeeding the war. Drugs are mostly imported commodities, and, as the premium on gold advanced during the year from 13 per cent. to 15½ per cent., the general tendency of prices was upward.

To our friends of Chicago we have to extend our heartfelt sympathies with their misfortunes resulting from the great calamity which befell their city last fall.

The prospect for business for another year has been improved by Congress further increasing the free list, adding to it almost all of the crude drugs, including a number of the essential oils, which will reduce considerably the value of goods. The few crude articles still subject to duty were probably overlooked, and the errors will no doubt be rectified at the next session of Congress. Among these are opium, which pays a specific duty of $1 per pound; assafœtida, 20 per cent. ad valorem; Barbadoes tar, 20 per cent.; lime-juice, 10 per cent.; quicksilver, 15 per cent., &c. Annexed will be found an abstract from the tariff to take effect from the 1st of August next. Last April a decision was given by the Treasury Department that cod-liver oil in bulk, heretofore paying 40 per cent. duty as a medicinal preparation, should be returned in future at 20 per cent. with other fish oils.

Importations in general show an increase, and there is now a prospect that our seaport cities will regain some of the trade with Canada, West Indies, Central and South America, which

large duties and heavy taxation, in enhancing the value of merchandise, as also the cost of doing business, has driven to other countries.

The pharmacists of New York have lately succeeded in obtaining an act regulating their business more suited to their views than the obnoxious law which the previous State legislature had imposed upon them, which is a source of much satisfaction to the trade.

We have to deplore the growing tendency among merchants to give longer credits as an inducement to obtain orders rather than an aid to retailers to meet their engagements. That manufacturers should require extended credit until their productions can find a market is not unreasonable, but for dealers, who sell their merchandise for cash, prompt payment is the only correct principle, as the extension of time to this class of buyers often leads to overtrading, followed by those periodical disturbances of business relations.

The great facilities for intercommunication that have arisen in the extension and the opening of new lines of railways has had a wonderful effect in benefiting business, and the enormous increase in the consumption of all articles of luxury indicates a continued advancement of wealth in the interior.

Annexed will be found the report of Mr. R. M. Shoemaker, of Philadelphia, who is the only one of your committee that responded to the request of the chairman to furnish information that would be interesting to the Association.

Chemicals have excited considerable attention, and those for which we are in a great measure dependent upon England, and that are so largely used by our manufacturers, have been in extensive demand. The enhanced price of labor and of fuel in Europe has added so much to the cost of production that an advance in nearly the entire list has taken place. For comparison, below is given the quotations in London, June, 1872, and for the same month last year.

		1872.	1871.
Acid, Citric,	per lb., . .	8*s.* 9*d.*	2*s.* 11*d.*
" Oxalic,	" . .	1*s.* 1½*d.*	10*d.*
" Tartaric,	" . .	1*s.* 7*d.*	1*s.* 3*d.*

		1872.	1871.
Ammonia, Carb.,	per lb.,	7*d.*	6½*d.*
Chlor. Lime,	per ton,	£14 8*s.*	£13 6*s.*
Iodine,	per oz.,	2*s.* 1*d.*	1*s.*
Potassa, Bichrom.,	per lb.,	8*d.*	6*d.*
" Chlor.,	"	1*s.* 8*d.*	1*s.* 4*d.*
" Prussiate,	"	1*s.* 7*d.*	1*s.* 4½*d.*
Soda Ash,		8*d.*	2½*d.*
" Bicarb.,	per cwt.,	16*s.* 6*d.*	12*s.* 6*d.*
" Sal,	per ton,	£6 15*s.*	£4 17*s.*

IMPORTATIONS FOR THE YEAR.

Acid, Citric,	972 kegs.	58 casks.
" Oxalic,	82 "	825 "
Chlor. Lime,		28,166 "
Soda Ash,		49,608 "
" Bicarb.,		29,398 "
" Sal,		60,595 "
" Caustic,		27,498 "

Bromine and its salts are now produced in this country so cheaply that instead of importing our supplies, as was the case a few years ago, we are now exporters. *Bromide Potassium* has very largely increased in consumption, and is now one of the most favorite remedies prescribed by the physician.

Iodide Potassium has been very much enhanced in value by the high cost of iodine, which product is now controlled by a few English dealers, who throughout the year have steadily advanced their prices to the present very high figures. It is said that this advance, in a great degree, is due to the increased consumption caused by the extensive manufacture of iodine green by the aniline makers, but to what extent we are unable to state.

Chlorinated Lime during the spring became very scarce, and the price advanced rapidly from 4½ cents to 10 cents. At this extreme figure, however, but few sales were made, when fresh supplies arriving by steamer, holders soon lowered their demands to 7 cents, and afterwards, as stock accumulated, it declined further, closing weak at 5 cents.

Chlorate of Potassa has pursued a somewhat similar course, only that with articles also most largely used by the bleachers,

the advance commenced in the fall, rising in October from 45 cents, at which it had been quite steady, to 65 cents. The advance, however, checked business, and lower prices were soon accepted. By the end of December purchases were effected at 50 cents. At the opening of the new year the supply was found to be light, and again higher figures ruled. In April 66 cents, the highest rate, was obtained, and from that time forward we have to record a decline until the close, when the article was dull at 50 cents.

Morphine has, as usual, followed the variation in value of opium, and the market has been well supplied. With *Quinine* this has not been the case; during September there was a very deficient supply of this important remedy, and the rather extraordinary figure of $3.75 was paid for some small parcels to meet urgent demands which had suddenly sprung up in the West, owing to the prevalence of fevers. Telegraphic orders were sent to Europe, but by the time the quinine arrived the excitement had subsided, and importers had to accept the then ruling figure, $2.50, or hold their stock in bond for reshipment. The English makers have advanced their rates, and now ask equal to 18 cents more than the opening price, and our manufacturers are obtaining an advance of 15 cents. This price is likely to be maintained, as the foreign article will cost to import, under the new tariff of 20 per cent. ad valorem, about $2.60. Moreover, dealers have been cautious, and probably the quantity contracted for has been lighter than usual, so that if any unexpected demand arises next fall, as was the case last September, the manufacturers may make their price as low as they please, but those who may have a stock will be able to get any price they may ask.

The tariff on this chemical illustrates the injustice of imposing duties for purely prohibitory purposes. As the case stands with cinchona bark, free, 20 per cent. duty forbids the importation of foreign quinine when most needed, except at great risk to the importer, and as our manufacturers never avail themselves of this discrimination on the foreign article, it is evident that this duty is not required either for purposes of protection, as it is called, or for revenue, and it should

therefore be repealed as an act of justice as well as sound principle. With the progress of knowledge in our country, and more enlarged views, we may confidently hope for an early reform in that narrow and selfish policy which has been misnamed "protection," because such legislation always creates a monopoly for the exclusive benefit of a few. There are at present but two important manufacturers of quinine within the United States, because Congress excludes the foreign article by unnecessary duties, and our manufacturers so combine and manage as to keep out domestic competition.

Free commerce with all countries is a necessity, to avert the constant tendency of capital to combine in its own interest, a fact which is fully exemplified in the condition of that oldest of all empires, China, where, it is said, a perfect and complete combination is maintained in all branches of business, because foreign commerce is discouraged.

Citric Acid.—The market opened in July, at 95 cents, having advanced to 3*s.* 5*d.* in England, and the price ruled quite steady here until October, when it rose to $1.00. In December came lower quotations from Europe, and with but light consumption, the price weakened. In February news of the loss of a cargo of lemon-juice was received. A speculative demand was the result in Europe, thereby causing an advance to 4*s.*, and it rose here, in sympathy, until March, when it was firm at $1.25, and continued unchanged until May, when, with a good supply and a decline, the market closed at $1.15. The importation exceeds that of last year about 25 per cent., but the greater consumption has prevented any large accumulation of stock, and no further decline is expected.

Tartaric Acid.—The importation of this important article has been only about one-seventh of that of last year, but the market has been kept well supplied with the product of our home manufactories, of which we have several, and we hear that others are about to begin operations. The probabilities are that the foreign article will soon be wanting, as the duty of 15 cents per pound will not allow it to compete with the domestic product.

Oxalic Acid.—The price opened at 26 cents, but soon after rose to 30 cents, continuing at this figure until about January 1st, when, with improved demand, it was advanced to 32 cents, and fluctuated between this price and 34 cents to close of the year.

Balsam, Canada, has commanded high prices during the year, as the supply has been very short, and, toward the close, it was almost out of market. A species of balsam from Oregon has been substituted, in some instances, for the true Canada balsam. We have a sample of the former for your inspection in the sample or exhibition room.

Balsam Copaiba declined from 84 cents to 75 cents during the first six months. In February it rose to 82 cents, and the advance continued up to May, when 90 cents was asked, and the market closed weak for duty-paid lots, in anticipation of the change in tariff admitting it free. The European markets have not been so well supplied as the American. The shipments from Para have been small, while from Angostura they have been larger than usual, and generally of fine quality.

Balsam Peru.—Although the shipments of this article show an increase, being 2900 pounds against 2237 pounds, the price has been kept steady, as but small quantities have been withdrawn from bond as wanted. There will be a considerable quantity thrown upon the market after August 1st, and a decline more than the duty will probably take place, as it will not pay to export, the foreign market being also well supplied.

Balsam Tolu, for the most part of the year, ranged between 90 cents and $1.00, but, toward the end, holders began to discount the effect of the change in the tariff, and it closed weak at 84 cents. The importations have been generally of fair, soft quality—clear, hard balsam being wanted.

Bismuth Metal has declined during the year, and the prices of its preparations have taken the same course. A further reduction is expected.

Barks.—The large stock of Cinchonas of low grades in market early in the year has been considerably reduced, but

without much effect upon prices. The finer grades of Calisaya and red varieties have been scarce, but the higher prices offered in Europe have induced shipments to seek that market, and for the best red bark we have been compelled to get our supply through London.

Noticing the favor which the bark of East India growth has met with in London, we have been induced to procure a sample, which we present for your inspection in the exhibition room.

We are pleased to call your attention to the report of the Agricultural Department at Washington concerning arrangements that have been made, by which we are to receive a large number of plants of the Cinchonas, embracing all valuable varieties. This acquisition will encourage experiments in the culture of this valuable plant in those sections of the South where there is a reasonable prospect of success.

Sassafras Bark.—The large stock that has been in the market for two years past is much reduced; the low prices paid have given no inducement to the gatherers to send further supplies. The new bark has been almost entirely used for the distillation of the oil, which brought to the manufacturers a better return.

Cundurango Bark.—The extraordinary properties ascribed to this article, and the enormous prices, $50 to $100 per pound, paid for the first few pounds brought to this country, were an inducement for parties in South America to send here all that could be gathered, and between October and February, 1867 ceroons were entered at our custom-house. Whether it is going to rank in our Materia Medica among important alteratives is, as yet, an unsettled question; opinions as to the value of its medicinal properties are greatly at variance. The medical fraternity have not been disposed to look upon it favorably, owing, perhaps, to the effort which was made to introduce it to the public in the form of a proprietary remedy. Much of the stock in market is considered worthless. The best bark can be bought, in small lots, at 75 cents per pound.

Beans, Calabar, have continued to decline with a good sup-

ply, and are now quoted at 85 cents, against $1.25 at the beginning of the year.

St. Ignatius Beans have been also more plentiful, and can be bought cheaper.

Tonca Beans became, early in the year, an article of speculation. Angosturas rapidly advanced from 55 cents to 70 cents. This price continued steady until February, when almost the entire stock became concentrated in the hands of one firm, who demanded for them $1.25, which figure has been since maintained. This comparatively high rate has had the effect of inducing larger shipments than usual of short beans from Para, but these have been neglected, and sold at only about half the price of long.

Vanilla Beans of really fine quality have been scarce, and the new crop, which but recently came into market, is not much better than last year's, and high prices are asked. Although the duty of $3.00 per pound is to be taken off on the 1st of August next, consumers will not be able to purchase lower than heretofore, and some holders even ask higher prices.

Berries.—Cubeb have been very abundant, and the stock was further increased in February by the arrival of 220 bags. The market, which opened dull at 18 cents, gradually declined in anticipation that the duty of 10 cents per pound would be removed. They were held at 8 cents gold, in bond, and at 13 cents out of bond, at the close of our report.

Juniper Berries have also been in large stock, and the price has fallen from 7 cents to 4½ cents per pound. Shipments from Leghorn were considerable, while from Germany very few have been sent this year, their cost being higher than the Italian berries.

Cantharides were dull in July and August at $1.50. In September advices were received from Russia, stating that the new crop would be considerably below the average, and the price began to advance. In December it touched $2.10,

and continued at this figure until April, when, with light demand, $1.90 was accepted, the market closing dull at $1.85.

The importation has been 8450 pounds, against 18,907 pounds. We would call your attention to a sample of Chinese cantharides which we have sent to your exhibition, being obtained from a lot sold in London, none of which kind have been imported this year.

Ergot has been in large supply, and has steadily fallen from 80 cents to 55 cents. Part of this decline has been due to the effect of their being placed upon the free list, but even in bond, quotations are 15 cents lower than at the beginning of the year.

Flowers.—Arnica have been very abundant, and selling low. *Chamomiles* of fine quality have been in limited supply, and advices regarding the new crop are unfavorable, but it is impossible to make any correct report until after the gathering. *Rose Leaves* have been plenty, and of good quality.

Glycerin, early in the winter, advanced, owing to a scarcity of crude material; large orders sent to Europe for the latter had the effect of raising values there. The usual quantity of refined has not been imported this year.

Gums.—Barbadoes Aloes in gourds have been difficult to obtain until recently, when two shipments of about 6000 pounds were received. The *Cape Aloes*, offered in market, has generally been of better grade than usual, especially those shipments coming direct. *Socotrine Aloes* have excited little attention, and the market has been supplied with the usual various grades, the cheapest kinds, however, meeting with the largest sale. *Arabic* has been plentiful, and prices have remained unchanged, although, throughout the year, the cost of importation has been increased, by the continuous fall in Trieste exchange to the extent of 12 per cent. *Camphor* has ranged between 68 cents and 73 cents; most of the sales, during the active demand in the spring, were effected at 71 cents. *Assafœtida* during the first half of the year became scarce, and the price commenced to advance from 38 cents and continued until January, when 75 cents was paid for

what little, which was of very poor quality, remained in the market; shortly after this time fresh supplies began to come in, and the price gradually fell to 55 cents. All the arrivals have been of fine grades, with the exception of one lot which our customs drug examiner ordered to be reshipped, and there is now none of inferior quality to be had. *Opium* has this year been more abundant than ever before; the stock of old crop in Smyrna unsold was large when the new commenced coming into market, the latter yielding the extraordinary sum of 8000 baskets. The low prices caused many orders to be sent from China and the East Indies, most of which were filled at from P. 135 to P. 140. This demand carried off considerable of the surplus, and only 700 baskets remained unmarketed on June 1st, of which 35 were new opium. The market at the opening was active at $4.37½ gold, in bond; after sales of about 25 cases on the spot, and about 35 cases to arrive, at $4.25, it rose to $4.62½ for immediate deliveries, and for September delivery to $4.50, quotations from Smyrna being P. 165. This activity continued until the last of the month, when the increasing stock in Symrna caused a decline to P. 132, and the price here fell to $4.00; it reacted in August, but was barely maintained, and gradually declined; sales were made toward the end of September at from $4.00 to $3.87; in October, the Smyrna market was excited, and went up to P. 140, causing greater firmness on the part of dealers here; in December, sales were made at $3.75, closing at $4.00, and quoted at Smyrna at P. 138. The receipts there amounted to 5265 baskets, against 2955 at same time last year. The stock here, in January, was estimated at 340 cases, the importation during the three previous months having fallen off to 150 cases, and in January only amounting to about 25 cases. February showed more activity, and toward the latter part of the month, the price advanced to $4.70 here, and at Symrna to P. 160, being firm at these figures. On receipt of despatches in March, quoting still higher figures, and the confirmation of previous reports of extensive damage to the planting of December, our market advanced to $5.00. Some holders, however, not placing

much faith in these rumors, and knowing that the two later plantings were most to be depended upon, made sales of 60 cases at $4.37½, deliverable at their option any time within three months. The course of the market proved the correctness of their foresight; the price only fell off about 25 cents per pound in April, but in May they were able to cover their sales at from $4.12½ @ $4.25; Smyrna quotations falling to P. 147. Both markets remained dull until the latter part of June, when reports again of damage to the crop, and the news that the Dutch East India Company had made extensive purchases had the effect to raise the price to $5.00, and it closed with an upward tendency, telegrams reporting no sellers at P. 175, equal to $5.25.

The shipments from Smyrna for the year have been as follows:

To Liverpool, 1761 cases (of which 835 were probably for reshipment to the United States); to London, 1277 cases; to America, 1122 cases; to China, Batavia, &c., 1307 cases, chiefly small cases; to Rotterdam, 600 cases (for account of the Dutch Company); to the Continent, 497 cases; making a total of 6564 cases. Of the prospect for next year it is yet too early to form any approximate judgment. Accounts are greatly at variance, the yield being estimated at from 3000 to 5000 baskets. Before 1857 a fair crop consisted of about 2000 baskets, but since that time, this amount has been termed a "short crop." The average of large crops prior to 1871, has been only about 4000 baskets, while subsequent large crops have approached 8000 baskets. There is no doubt but that the production of this important drug has been steadily on the increase, yet the consumption has more than kept pace with it, and comparatively better prices are now realized than formerly.

Leaves.—*Aconite* and *Henbane* have been in fair supply, but *Belladonna* toward the close of the year became scarce. *Senna* has been plenty, but chiefly of low grades. The market for *Buchu* opened at 22 cents for short and 35 cents for long; the former gradually weakened until April, when 15 cents was accepted; in May, there was a temporary

scarcity, and they advanced to 20 cents, but soon fell back to 16 cents, closing weak; as short declined the long took the opposite course, steadily advancing as they became more scarce, and what few remained in March sold at $1.00 per pound. About two months later a small shipment was received, and sold at 65 cents, the next arrival was sold at the same price, but when samples were drawn for approval the lot was rejected on account of quality, the leaves being found very long and spear shaped, closely resembling Buchu, but having quite a different odor and taste. A small sample has been secured for your inspection.

Lycopodium with two successive years of scarcity has commanded high prices, opening at 60 cents and closing firm at $1.00 per pound. Very little has come from Germany, and the shipments from Russia have been very fine.

Manna.—The crop this year has been abundant and of good quality, with large importations. Small flakes have steadily declined from 95 cents to 53 cents, and large flakes from $1.50 to $1.10.

Mercury has sold at higher figures this year than last, starting at 86 cents, and ending with 95 cents in November. During the winter it reverted to 92 cents, but in March it again met 95 cents, and later $1.00 was asked and obtained. The importation shows some falling off, being only 266,000 pounds, against 304,965 pounds of last year. Another effort was made during the last session of Congress to place it on the free list, but owing to some opposing interest the duty of 15 per cent. remains. How a change of this kind can affect the domestic production we cannot understand, as none from the Californian mines has found its way to the Eastern markets, being all required for local consumption or for the China trade.

Oils.—The shipments of *Anise* from China has been 227 cases, against 212 cases last year. The expectation of the duty coming off next August has had the effect of lowering the value of duty-paid lots, but prices in bond have also declined, owing to the large and increasing stock. *Cassia Oil*

has sold lower than for many years. Some sales were made at $1.10 gold, in bond, but toward the close of the year, other sales were effected at $1.60, owing to the receipt of advice from China that the supply there was nearly exhausted, and that no more was expected before September. The direct shipments have only been 175 cases, against 477 last year.

Castor Oil has excited but little interest, and owing to the high duty still imposed, and the increased home product more than supplying wants, little or no East India has been imported.

Oil, Lemon, has excited considerable attention, as dealers hoped to realize the same profits as they did last year, owing to prospects of another short supply. At both the opening and the closing of the year, the finest quality sold at about $5.50. When the new crop began to arrive $6.00 was paid, and the price would probably have ruled very high had not the market been overstocked with an inferior grade, and which sold at from $1.00 to $1.25 per pound less than the prime. This unusual difference has been an inducement to many jobbers to substitute the poorer for the better oil.

Olive Oil has remained very steady, the currency price advancing only with the rise in the gold premium. The supply has been light, but a high price for this article always diminishes its consumption, as cheaper oils can be used instead of it for manufacturing. We cannot find any satisfactory reason why the duty of 25 cents per gallon is to be continued, unless it is hoped that the few olive trees in California may produce, at some future date, enough oil to supply the local demand.

Oil, Peppermint, in bulk, toward the close of the year, became quite scarce, an unusually large proportion of the yield having been taken for bottling, to export, but the demand for it in this shape has not come up to expectation, and considerable of it, without doubt, will be carried over to next year.

Oils, Sassafras and *Wintergreen*, have been in good demand for consumption, and have generally brought better returns than usual to the distillers.

Roots.—*Aconite*, *Althea*, and *Dandelion*, have been scarce, and great difficulty has been experienced in procuring the latter of good quality.

Gentian has been plenty, and the old stocks being large, no importations have been made of the last crop. This has had a very depressing effect upon foreign markets, and low prices is the result.

Ipecac.—As a large portion of the importation of last year was carried over to the new year, and as the stock was considerably increased by more arrivals during the fall and winter, the price, which opened weak at $1.65, declined to $1.30 per pound, at the close. The stock, however, in Rio, in January, 1871, was estimated only at 208 ceroons, against 356 ceroons at the same time the year previous.

Fine quality *Rhubarb* and *Jalap* have been even more difficult to obtain than usual. If physicians were aware of the trash that was sometimes offered, in a powdered form, for jalap, it would no longer appear on their list of remedies. Many drugs, in a powdered state, have been imported during the year, but the Drug Examiner of the New York Custom House, upon consultation with several of the principal druggists, has decided in future not to allow any to enter the country the purity of which cannot be readily determined. The above protective step was necessary, as so much inert and valueless stuff found its way into market under the names of rhubarb, cantharides, and ipecac.

Sarsaparilla Root has met with a good demand in Europe, and the high prices paid there have induced a reshipment from this country of most of the best consignments. The stock here in consequence is light, but prices have not risen much above 33*c.* for Honduras and 18*c.* for Mexican.

Seneka, *Serpentaria*, and *Spigelia* have all sold at rather higher rates than usual, as the supplies from the interior have been limited.

Saffron, *American*, owing to the high prices that have been obtained for the past two years, has met with a more exten-

sive cultivation than formerly, adding to the increased supply several large consignments from Mexico. The result has been to greatly reduce its value. A sample of the Mexican is presented for examination. Spanish saffron has also been more plentiful, and can now be bought at reasonable figures.

Seeds.—German Anise has been wanting, but the supply of the Italian and French of good quality has more than made up for this deficiency. *Cardamoms* have declined about 10 per cent. during the year, owing to increased stock. *Fennel* have been wanting, and toward the end of the year no prime seeds were to be had. *Flaxseed* opened at lower prices, but the large consumption of the East India growth for the manufacture of oil has occasioned an advance on both varieties.

Turpentine, Venice, is now selling at double the price it did a year ago. The yield has been small, and advices from Trieste concerning next year's production are unfavorable.

Respectfully,

J. McKesson, Jr.

Comparative List of Prices for Original Packages.

	1871.	1872.
Acid Acetic, No. 8,	$0 12	$0 12
" " pure,	20	20
" Benzoic sublimed,	29	27
" " German,	3 10	3 20
" Citric,	95	1 18
" Oxalic,	32	32
" Tartaric crystal,	60	63
Ammonia Carb., in jars,	20	22
" " in bulk,	18½	20
Arrowroot, Bermuda, prime,	50	42
Balsam, Canada,	3 75	4 50
" Copaiba,	84	85
" " solidifiable,		
" Peru,	3 50	3 25
" Tolu,	90	85
Bark Angostura,	40	35
" Bayberry,	7	6
" Canella,	10	8
" Cascarilla,	9	9
" Cinnamon, Ceylon,	1 20	1 15
" Cotton-root,	25	25
Bark Elm, select,	$0 15	$0 17
" Peruvian Loxa,	65	60
" " Red Crown,	3 25	2 75
" " " Ecuador,	1 25	1 15
" " Red Rubinigosa,	45	28
" " Yellow Calisaya,	1 30	1 20
" " Yellow Bolivia,	60	60
" " Yellow Maracaibo,	20	16
" Prickly Ash,	15	12
" Sassafras,	8	8
" Simaruba,	35	25
" Wild Cherry, select,	15	13
Beans, Calabar,	1 25	85
" St. Ignatia,	1 10	1 00
" Tonka, Angost., prime,	55	1 35
Berries, Cubeb,	18	16
" Juniper,	7	4½

	1871.	1872.
Buds, Cassia,	$0 65	$0 57½
Cacao Butter, pure,	63	56
Calomel, Eng.,	1 45	1 45
Cantharides,	1 50	1 85
Cassia,	39	34
Chloral Hydrate,	2 40	2 25
Cloves,	14	22½
Colocynth Apples,	22	24
Copperas,	1½	1½
Corrosive Sublimate,	1 02	1 10
Cream Tartar, cryst.,	36½	41
Creosote,	1 00	1 25
Ergot, prime,	85	55
Extract Belladonna,	3 00	3 00
" Cannabis Ind., oz.	80	70
" Conium,	1 35	1 25
" Dandelion,	1 10	1 10
" Henbane,	3 85	4 50
" Licorice, P. & S.,	48	38
Flowers, Arnica,	13	10
" Chamomile, Roman, old	22	15
" Chamomile, Roman, new,	35	32
" Chamomile, German, old,		
" Chamomile, German, new,	33	28
" Lavender,	8	6
" Rose,	2 10	1 50
Gum Aloes, Barbadoes,	45	42
" " Cape,	8	10½
" " Socotrine, true,	70	70
" Arabic Sorts,	22	21½
" " " sifted,	25	24
" " 1st select,	58	58
" " 2d "	39	43
" " 3d "	34	35
" Benzoin, marbled,	68	55
" Camphor, refined,	72	72½
" Catechu, true,	8	10
" Euphorbium,	16	15
" Fetida, prime,	38	60
" " fair,	30	
" Galbanum,	1 00	90
" Gamboge,	83	80
" Guaiac, select,	50	30
" Kino, true,	35	30
" Myrrh, Turkey,	45	45

	1871.	1872.
Gum Myrrh, India,	$0 40	$0 38
" Olibanum, Tears,	40	30
" " garblings,	18	16
" Sandarach,	35	30
" Sanguis Draconis, mass,	55	38
" Sanguis Draconis, reeds,	65	75
" Scammony Virgin,	11 00	10 00
" Tragacanth, White Flake, No. 1,	90	90
" Tragacanth, White Flake, No. 2,	60	72
" Tragacanth, brown,	50	46
" " Vermicelli,	55	55
" Tragacanth, round Sorts,	33	24
Herb, Bittersweet,	11	10
" Cannabis Indica,	45	30
" Chiretta,	40	30
" Coltsfoot,	12	12
" Horehound,	14	12
" Lobelia,	15	15
" Sage,	10	6
" Wormwood,	15	15
Indigo, Bengal,	2 25	2 25
Iron by Hydrogen,	1 80	1 80
Isinglass, Russian,	4 50	4 50
Kousso,	1 40	1 00
Lapis Calaminaris,	5	5
Leaf, Aconite,	16	13
" Belladonna,	17	20
" Buchu, short,	22	16
" " long,	35	55
" Conium,	15	15
" Digitalis,	16	14
" Henbane,	16	16
" Laurel, true,	8	9
" Matico,	50	40
" Senna, Alexandria,	15	12½
" Senna, Alexandria, sifted,	35	20
" Senna, Bombay,	15	14
" " Tinnevelly,	21	21
" Uva Ursi,	8	9
Lime, Chloride,	4½	6
Lycopodium,	60	95
Madder, Dutch, prime,	15½	15½
Magnesia, Calc., Jennings', 10 pound round cans,	85	85

	1871.	1872.
Magnesia, Calc., Jennings', 1 pound round bottles,	$1 10	$1 10
Magnesia, Calc., Jennings', Ponderous, 1 pound bottles,	1 70	1 55
Magnesia, Carbonate, Jennings', 2 oz. papers,	34	32
Magnesia, Carbonate, Jennings', 4 oz. papers,	32	30
Magnesia, Carbonate, 1 in. squares,	60	58
Manna, Small Flake, prime,	95	53
" Large Flake, prime,	1 50	1 08
" Sorts, Flake, prime,	70	38
Mercury,	86	1 00
Morphine Sulph., ¼ oz.,	5 50	5 40
Moss, Irish, best,	15	10
" " fair,	9	7
" " Iceland,	11	8
Musk, Tonquin, pods,	8 50	8 00
" " grains,	21 00	20 00
Nux Vomica,	8	6
Oil Almonds, Essential,	15 00	12 75
" " Sweet,	50	52
" Aniseed,	3 35	3 50
" Bergamot, prime,	4 87	5 00
" " fair,	4 60	
" Cajeput,	1 25	1 10
" Camphor,	2 00	2 00
" Caraway Seed,	3 50	3 00
" Cassia,	2 40	2 50
" Castor, Pale, cases,	20	17
" " White, filtered,	21	21
" Citronella, Winters,	2 12½	1 80
" Cloves,	1 65	1 90
" Cod Liver, filtered, N. F.,	1 80	1 35
" Cod Liver, filtered, Norwegian,	2 00	2 00
" Copaiba,	2 20	1 75
" Croton,	2 80	2 70
" Cubebs,	2 80	2 30
" Juniper Berries, fine,	4 00	3 25
" " Wood "	90	70
" Lavender Flowers,	2 60	2 40
Oil Lemon, prime,	$6 00	$5 55
" Mustard, Essential,	25 00	20 00
" Olive, pure Malaga,	1 30	1 40
" " fine,	2 75	2 75
" Orange,	3 25	4 50
" Pennyroyal,	2 50	2 25
" Peppermint,	3 00	3 10
" Rose Kissanlik,	8 50	7 00
" Rosemary, No. 1,	1 65	1 35
" " Trieste,	90	80
" Sandal-wood,	12 50	13 00
" Sassafras,	80	85
" Savin,	1 75	1 50
" Spearmint,	3 25	3 75
" Succin, rec.,	1 00	90
" " Crude,	40	35
" Thyme, Red Flowers,	1 50	2 10
" " "	1 10	1 15
" " White, "	1 65	1 67
" Valerian, German,	16 00	14 50
" Wintergreen,	5 50	4 60
" Wormseed, Baltimore,	3 00	2 75
Orange Peel,	12	8½
Pepper, Bird,	19	21
Pill Hydrarg., U. S. P.,	80	75
" " "	50	45
Pitch, Burgundy, true,	9	7½
Potassa, Bichromate,	25	22½
" Chlorate, English,	49	52
" " French,	55	55
Potassium Bromide,	95	1 30
" Iodide,	5 75	8 50
" " French,	6 50	9 00
Quinine, Sulphate,	2 35	2 60
Red Precipitate,	1 25	1 30
Root, Aconite, German, select,	17	14
Root, Aconite, English, select,	1 00	1 00
Root, Alkanet,	14	14
" Althea,		17
" " cut,	20	22
" Calamus, peeled,	15	14
" " "White, split,	50	36
" Cohosh, Black,	10	8
" Colchicum, German,	16	12½
" Columbo,	15	13
" Dandelion,	18	22

	1871.	1872.
Root, Elecampane,	$0 12	$0 12
" Galangal,	6	5
" Gentian,	7	6½
" Ginger, Jamaica, bleached,	18	23
" Golden Seal,	22	18
" Hellebore, Black,	16	16
" " White,	14	12
" Ipecac, Rio,	1 65	1 35
" Jalap, V. C.,	50	60
" Licorice, select,	12	12
" Mandrake,	10	8
" Orris,	13	14
" " Finger,	50	55
" Rhatany,	30	35
" Rhubarb, Bremen, trimmed,	4 00	
" Rhubarb, China, select,	1 75	1 65
" Rhubarb, China, select, cut,	5 00	5 00
" Rhubarb, China,	80	80
" Sanguinaria,	9	8
" Sarsaparilla, Honduras,	33	34
" Sarsaparilla, Honduras, cut,	40	41
" Sarsaparilla, Mexican,	16	19
" Seneka,	85	1 10
" Serpentaria,	50	40
" Spigelia,	50	38
" Spikenard, crushed,	17	17
" Squills, White,	7½	7
" Stillingia,	15	10
" Valerian, English,	40	35
" " Dutch,	20	17
" Zedoary,	24	22
Saffron, American,	5 50	90
" Spanish,	15 50	14 00
Sal Epsom,	3	2½
" Glauber,	2	2
" Rochelle,	33	36

	1871.	1872.
Seed Anise, Italian,	$0 22	$0 25
" " Russian,		
" " Star,	44	50
" Canary, Sicily,	4 00	4 50
" " Smyrna,	3 30	3 75
" Caraway,	11	10½
" Cardamom, Malabar,	3 00	2 80
" Colchicum,	20	17
" Coriander,	11	10½
" Cumin,	40	22
" Fennel,	17	20
" Flax, cleaned,	6½	6½
" Fenugreek,	8	6½
" Grains, Paradise,	14	18
" Hemp,	2 40	2 10
" Musk,	60	70
" Mustard, White,	11	11
" " Black, Trieste,	21	20
" Rape,	5 25	4 87
" Worm, Levant,	17	15
" " American,	11	9
Soap, Castile, mottled,	13	11½
" " White, Conti's,	17½	16
Soda Bicarb., Newcastle,	5½	6
" " extra fine,	8	8
" Sal,	2½	2½
Styrax, Liquid,	40	32
Sugar of Lead,	23	17½
" Milk,	35	33
Sulphur, Flowers,	3½	3½
" Lac,	15	12½
" Roll,	3½	3
Tamarinds, W. I.,	10	8
" E. I., sour,	15	13
Water, Orange Flower, 5 gal. cans,	12 00	13 00
" Rose, 5 gal. cans,	12 00	13 00
Wax, White, best,	67	67
" " Ockmid's,	60	62
" " Sun bleached,	55	57
White Precipitate,	1 45	1 50

Rates of Import Duty on Drugs and Druggists' Sundries, to take effect 1st of August, 1872.

Acetate Ammonia, ... 25 c. per lb.
" Baryta, ... 25 "
" Copper, ... 10 "
" Iron, ... 25 "
" Lead, Brown, . . 5 "
" " White, . . 10 "
" Lime, ... 25 "
" Magnesia, ... 50 "
" Potassa, ... 25 "
" Soda, ... 25 "
" Strontia, ... 25 "
" Zinc, ... 25 "
Acid Acetic, or Pyroligneous Acid, over 1047 specific gravity, ... 30 "
Acid Acetic, No. 8, under 1047 specific gravity, . . 5 "
Acid Arsenious, Crude, . . Free.
" " " other than Crude, 20 per cent.
" Benzoic, ... 10 "
" Boracic, ... Free.
" Carbolic, used as a disinfectant, . . . 20 per cent.
" Carbolic, for Chemical or Manufacturing, . Free.
" Carbolic, for medicinal use, ... 10 per cent.
" Carbolic, Liquid, . . 10 "
" Chromic, ... 15 "
" Citric, ... 10 c. per lb.
" Gallic, ... $1 "
" Hydric, ... 10 per cent.
" Muriatic, ... Free.
" Nitric, Yel. and White, 10 per cent.
" " *not* Chemically Pure, . . . Free.
" Oxalic, ... "
" Picric and Nitro-Picric, "
" Pyrogallic, ... "
" Rosalic, so called, . . 20 per cent.
" Succinic, ... Free.
" Sulphuric (Nordhausen), ... 1 c. per lb.
" Sulphuric, other, . . Free.
" Tannic, ... $1 per lb.
" Tartaric, ... 15 "
Acids of every description used medicinally, or in the fine arts, not otherwise provided for, ... 10 per cent.
Acids of every description used for chemical and manufacturing purposes, . . Free.
Acids, Carboy containing, duty same as if empty.
Acorn Coffee, ... 3 c. per lb.
Adhesive Plaster (medical preparation), ... 40 per cent.
Adiantum, ... 20 "
Agaric, ... Free.
Alcohol, ... $2 per proof gal.
" of which Perfumery, is chief, $3 per gal. and 50 p. c.
Ale, Porter, and Beer, in bottles, ... 35 c. per gal.
Ale, Porter, and Beer, in casks, ... 20 c. per gal.
Alkaline Silicates, ... ¼ c. per lb.
Alum, ... 60 c. per 100 "
" Patent, ... 60 " "
" Substitute, . . . 60 " "
Alumina Sulph., . . . 60 " "
Aluminous Cake, . . . 60 " "
Aluminum, Crude Metal, . Free.
Ambergris, ... "
Ammonia, Carbonate, . . 20 per cent.
" Muriate, . . . 10 "
" Sulphate, . . . 20 "
" Water (medical preparation), . 40 "
Amylic Alcohol, ... $2 per gal.
Aniline Dyes and Colors, . { 50 c. per lb. and 35 p. c.
" Oil, ... Free.
" Pulp or Paste, . . 20 per cent.
Annatto, ... Free.
" Extract, ... "
Anodyne, Hoffman's, . . . 50 c. per lb.
Antimony, Crude, Regulus, . 10 per cent.
" Ore or Crude Sulphuret, . . . Free.
" White Oxide, . 40 per cent.
Aqua fortis, ... Free.
Argol, or Crude Tartar, dust, "

Argol, partially refined, Brown Tartar, ... 6 c. per lb.
Armenia Bole (cosmetic), . 50 per cent.
Arrowroot, ... 30 "
Arsenic, ... Free.
Articles manufactured, not otherwise provided for, . 20 per cent.
Articles not manufactured, not otherwise provided for, 10 per cent.
Asbestos, manufactured, . . 25 "
" not " . Free.
Asphaltum, ... 25 per cent.
Assafœtida, ... 20 "
Balsam Fir, Copaiba, Tolu, Peru, ... Free.
Balsams, all medicinal in raw state, not otherwise provided for, ... 30 per cent.
Bark of all kinds, not otherwise provided for (medicinal), ... Free.
Barley, Pulverized, . . . 20 per cent.
Barytes, ... ½ c. per lb.
" Carbonate, . . . ½ "
" Combination of, with acid or water, 3 "
" Nitrate & Muriate, 20 per cent.
" Sulphate, . . . ½ c. per lb.
Battley's Sedative (Liq. Opii Sed.), ... 50 per cent.
Bayberries, ... Free.
Bay Rum or Water, same as Spirits.
Bay Water, distilled from Leaf, $1 p. gal., 1st proof, and in proportion for any greater strength.
Bay Wax, ... 20 per cent.
Beans, all not otherwise provided for, ... 10 "
Beans, Tonquin, Vanilla, and St. John's, ... Free.
Beans, St. Ignatii and Calabar (crude drug), . . . "
Beeswax, ... 20 per cent.
Benzoates, ... 30 "
Berries, for dyeing, not otherwise provided for, . . . Free.
Berries, Juniper, ... "
" Laurel, ... "
" not otherwise provided for, . . . 10 per cent.
Berries, Medicinal Crude, . Free.
Bismuth, metallic, . . . "
" oxide, ... 20 per cent.
" subnit., ... 40 "
Bitter apples (Colocynth), . Free.
Bitters, all containing Alcohol, and not otherwise provided for, ... $2 per proof gal.
Blacking, ... 30 per cent.
Bladders, manufactures of, . 30 "
Bleaching Powder (chloride of lime), ... Free.
Blue Mass, ... 20 per cent.
" Vitriol, see Sulph. Copper.
Borax, Crude or Tincal, . . Free.
" Refined, ... 10 c. per lb
Boxes, Cedar and other precious woods, ... 35 per cent
Boxes, Paper and Papier Maché, ... 35 "
Boxes, Gold or Silver, . . 40 "
" Fancy, not otherwise provided for, . . 35 "
Brandy, ... $2 per proof gal.
Brimstone, Crude, ... Free.
" in Rolls, . . . $10 per ton.
Bromine, ... Free.
*Bronze and all manufactures of, Copper chief val., 45 per cent.
*Bronze, Liquor, ... 10 "
* " Metal in leaf, Copper chief value, . 45 "
* " Metal in leaf, Copper *not* chief val. 10 "
* " Powder, Copper chief value, ... 45 "
* " Powder, Copper *not* chief value, . . 20 "
Brown, Spanish. See Colors.
Brushes, all kinds, . . . 40 "
Bunion Plasters of Wool, . { 50 c. per lb. and 35 p. c.
Burgundy Pitch, ... Free.
Cacao, ... 2 c. per lb.
" Crude, ... Free.
" Manuf'd or Prepared, 2 c. per lb.
Cadmium, Metallic, . . . Free.
Calomel, ... 30 per cent.
Camphor, Crude, ... Free.
" Refined, ... 5 c. per lb.
Cantharides, ... Free.

Carbon, Bisulphate and Bisulphide, ... 20 per cent.
Cassia, ... 10 c. per lb.
" Ground, ... 20 "
" Buds, ... 20 "
" Vera, ... 10 "
Castor Beans or Seed, 60 c. per bu. of 50 lbs.
Castoreum, ... Free.
Catechu or Cutch, ... "
Catsup, ... 40 per cent.
Caustic Soda, ... 1½ c. per lb.
Chalk, Billiard, ... 50 per cent.
" French, ... 20 "
" Red, ... 20 "
" White, ... Free.
" all not otherwise provided for, . . . 25 per cent.
Chemical Preparations used chiefly in Medicines, and not otherwise provided for, 40 "
Chemical Salts, not otherwise provided for, ... 20 "
Chiccory Root, ground or unground, ... 1 c. per lb.
Chiccory Root, prepared or burnt, ... 5 "
Chloral Hydrate, ... 40 per cent.
Chloride Lime, ... Free.
Chlor Kalium or Dung Salts, 20 per cent.
" containing less than 30 per cent. Potash, Free.
Chloroform, ... $1 per lb.
Chocolate, ... 5 c. per lb.
" Cakes, fancy, styled "bon-bons," . . 50 per cent.
Cinnabar, ... 20 "
Cinnamon, and Chips of, . 20 "
Citron, Candied, ... 35 "
Civet, Crude, ... Free.
Cloves, ... 5 c. per lb.
" Stems, ... 3 "
Cobalt, and Oxide of, . . 20 per cent.
" Ores, ... Free.
Cocculus Indicus, ... "
Cochineal, ... "
Colcothar, Oxide Iron, . . "
Collodion, ... $1.00 per lb.
Cologne Water, $3.00 per gal. & 50 per ct.
Colors, Water, moist, used in the manufacture of paper-hangings, colored papers, and cards, ... 25 per cent.
Colors, Water, not otherwise provided for, ... 35 "
Colors, not otherwise provided for, ... 25 "
Colors, Carmine Lake, dry or liquid, . . . 35 "
" Chinese Blue, . . . 25 "
" French Green, . . 30 "
" Kremnitz, White, . 3 c. per lb.
" Lampblack, . . . 20 per cent.
" Ochre, ... ¼ c. per lb.
" Paris Green, dry or moist, ... 30 per cent.
" Paris White, . . . 1 c. per lb.
" Prussian Blue, . . 30 per cent.
" Red Lead, dry or in oil, ... 3 c. per lb.
" Spanish Brown, . . 25 per cent.
" Ultramarine, . . . 6 c. per lb.
" Umber, ... ¼ "
" Vandyke Brown, . 20 per cent.
" Venetian Red, . . 25 "
" Vermilion, . . . 25 "
" White Lead, dry or oil, ... 3 c. per lb.
" Whiting, dry, . . 1 "
" Zinc, Oxide, . . 1¼ "
*Combs, ... 35 per cent.
Copper, Subacetate, Verdigris, Free.
" Sulphate, ... 4 c. per lb.
Copperas, ... ¼ "
Cork, Bark or Wood, Unmanufactured, ... Free.
Cork, Bark or Wood, Manf., 30 per cent.
Corn Plasters, of Wool, { 50 c. per lb. and 35 p. ct.
Corrosive Sublimate, . . . 20 per cent.
Cosmetics, ... 50 "
Court Plaster, ... 35 "
Cowage, ... Free.
Cream Tartar, ... 10 c. per lb.
Cubebs, ... Free.
Cudbear, ... "
" Extract, . . . "
Cuttlefish Bone, ... "
Dextrine, ... 10 per cent.
Dragon's Blood, ... Free.
Drugs in Crude State, not otherwise provided for, . 20 per cent.

Drugs in Crude State, used exclusively in Dyeing, . Free.
Demijohns, ... 40 per cent.
Dyeing Berries, Drugs, Nuts, Flowers, and Plants used in Dyeing, ... Free.
Dye Woods, ... "
" Extracts and Decoctions of, . 10 per cent.
Earthenware, White, . . . 40 "
Effervescent Preparations, Granulated, ... 20 "
Emery Grains, ... 2 c. per lb.
" Ore or Rock, . . . Free.
Emulsion, Pancreatic (Pat. Medicine), ... 50 per cent.
Ergot, ... Free.
Ethereal Preparations or Extracts not otherwise provided for, ... $1.00 per lb.
Ether, all kinds not otherwise provided for, . $1 "
" Fruit, ... $2.50 "
" Nitric Spirits, . . . 50 c. per lb.
Extracts, Meat, ... 20 per cent.
" Medicinal, . . . 40 "
" Hemlock Bark, . 20 "
" Proprietary, . . 50 "
Farina, ... Free.
Feldspar, ... 20 per cent.
Feeding Bottles, ... 40 "
Ferri Rubrigo, ... 40 "
Fertilizers, all used expressly, Free.
Fig, Blue, ... 25 per cent.
Flowers, all Medicinal, . . Free.
" not otherwise provided for, . . . 10 per cent.
" Dried and Prepa'd, Free.
Foil, Tin, ... 30 per cent.
Fruit Juice, ... 25 "
*Fuller's Earth, ... $3 per ton.
Fulminates or Fulminating Powder, ... 30 per cent.
Gambier, ... Free.
Gelatine and all similar Preparations, ... 35 per cent.
Ginger, Essence, ... 35 "
" Root, Ground, . . 3 c. per lb.
" " Preserved, . 35 per cent.
" " Green, Fresh or Dried, . Free.
Glass, all articles cut or engraved, . . . 40 per cent.
" moulded or pressed, . 35 "
" all manufactures of or of which Glass shall be a component material, ... 40 "
Glauber Salts, ... ½ c. per lb.
Glucose, ... 20 per cent.
Glue, Common, ... 20 "
Glycerin, ... 30 "
Gold Beater's Skin, . . . Free.
* " Leaf, . . . $1.50 per 500 leaves.
Grape Juice, ... 25 per cent.
Gums, all not otherwise provided for, . . . Free.
" Opium, ... $1 per lb.
" Resins, not otherwise provided for, . . 20 per cent.
Gutta Percha, Crude, . . Free.
* " Manufactured, 40 per cent
Gypsum, Unground, . . . Free.
" Calcined or Ground, 20 per cent.
Hartshorn, Spirits of (Medical Preparation), . . . 40 "
Honey, ... 20 c. per gal.
" Water, ... 50 per cent.
Hops, ... 5 c. per lb.
" Roots of, ... Free.
*Horn Combs, ... 35 per cent.
* " Manufactures of, . 35 "
Human Skeletons and other Preparations of Anatomy, Free.
Ice, ... "
*India Rubber Bougies, . 35 per cent.
* " Catheters, . 35 "
*India Rubber, Manufactures of, not otherwise provided for, ... 35 "
Indigo, ... Free.
" Carmine and Extracts of, ... 20 per cent.
Ink and Ink Powder, . . . 35 "
Iodine, Crude, ... Free.
" Resublimed, . . . 75 c. per lb.
" Salts of, ... 15 per cent.
Indium, ... Free.
Iron, by Hydrogen, . . . 40 per cent.
" Carbonate and Nitrate of, ... 20 "

*Iron, Manufactures of, not otherwise provided for,	35 per cent.
Isinglass or Fish Glue, . .	Free.
*Ivory, Manufactures of, not otherwise provided for, .	35 per cent.
Kaoline, ...	$5 per ton.
Kelp, ...	Free.
Kermes Mineral, ...	10 per cent.
Kreosote, ...	40 "
Kryolite, ...	Free.
Kyanite, ...	"
*Labels, Blank, ...	25 per cent.
* " Printed & Figured,	25 "
Lac, Crude, Seed, Button, Stick, Shell, or Dye, . .	Free.
Lac, Spirits, ...	"
" Sulphur, ...	"
Lapis Calaminaris, . . .	"
" Tutia, Oxide Zinc, .	1½ c. per lb.
Lard, ...	2 "
Laudanum, ...	40 per cent.
Lead, Nitrate of, ...	3 c. per lb.
*Leather, all articles and Manufactures wholly or partly of, not otherwise provided for, ...	35 per cent.
Leaves, all not otherwise provided for, ...	Free.
Leeches, ...	"
Lemon or Lime Juice, . .	10 per cent.
Lemon or Lime Juice, Concentrated, ...	10 "
Lemon Peel, not Preserved, Candied or Prepared, . .	Free.
Lemons, ...	20 per cent.
*Licorice Juice, ...	5 c. per lb.
* " Paste or Rolls, .	10 "
Liebig's Extract Meat, . .	20 per cent.
Lime, Borate of, ...	Free.
" Citrate of, ...	"
" Chloride of, . . .	"
" Hydrocarbonate of, .	1 c. per lb.
" Phosphate of, Crude, as Manure, . . .	Free.
" Phosphate of, Medical use, ...	40 per cent.
Lime Juice, ...	10 "
Limes, ...	10 "
" Preserved in Salt and Water, ...	35 "
Linseed, bush. 56 lbs., .	20 c. per bush.
Linseed Cake, ...	Free.
*Lint, Cotton, ...	35 per cent.
" Linen, ...	40 "
Liq. Opii Sedat., Battley's,	50 "
Litharge, *Dry* and in *Oil*,	3 c. per lb.
Litmus, Prepared or not Prepared, ...	Free.
Loadstone, ...	"
Lye of Wood Ashes, . . .	"
Mace, ...	25 c. per lb.
Madder, Ground or Prepared,	Free.
" Extract, ...	"
Magnesia, Calcined, . . .	12 c. per lb.
" Carbonate, . .	6 "
" Chloride, . . .	20 per cent.
" Henry's, . . .	50 "
" Sulphate, . . .	1 c. per lb.
Manganese, ...	10 per cent.
" Oxide and Ore of,	Free.
Manna, ...	"
Manufactures, all not otherwise provided for, . . .	20 per cent.
Manures, Substances expressly used for, . . .	Free.
Marrow, ...	10 per cent.
" Crude, ...	Free.
" Perfumed, . . .	50 per cent.
Matches, of Cotton, Wax, and Paper, ...	35 "
Meats, Extracts, Liebig, . .	20 "
" Prepared, ...	35 "
Medicinal Balsam, not otherwise provided for, . . .	30 "
Medicinal Barks, Flowers, Leaves, Plants, Roots, and Seeds, not otherwise provided for, if Crude, . .	Free.
Medicinal Barks, Flowers, Leaves, Plants, Roots, and Seeds, not otherwise provided for, if not Crude, .	20 per cent.
Medicinal Preparations, not otherwise provided for, .	40 "
Medicinal Preparations or Compositions, Patent, Secret, or Proprietary, . .	50 "
Medicinal Acids, for Medical Purposes, ...	10 "
Medicines, Crude, not otherwise provided for, . . .	20 "

Medicines, not Crude, not otherwise provided for, . 40 per cent.
Mercurial Preparations, not otherwise provided for, . 20 "
*Metals, Unmanufactured, not otherwise provided for, 20 "
Milk, Preserved or Condensed, ... 20 "
Milk, Sugar of, ... Free.
Mineral Waters, Natural, . "
Mineral Waters, Artificial, other than in boxes and jugs, ... 30 per cent.
Mineralogy, Specimens of, when imported as objects of taste or science, and not for sale, ... Free.
Morphia, Morphine, and all other Salts of Morphia, . $1 per oz.
*Mortars, Composite, Iron or Brass, Copper not chief val., ... 35 per cent.
*Mortars, Glass, ... 40 "
" Marble, . . . 50 "
" Stone, ... 20 "
Mosses, all Crude, ... Free.
Moulds, Lunar Caustic, . . 20 per cent.
Mouth, Perfumeries, Cosmetics, or applications for, 50 "
Musk, ... 50 "
" Crude, ... Free.
Mustard, Ground, in bulk, . 10 c. per lb.
" " in glass or tin, . . 14 "
Myrobalan, ... Free.
Naphtha, Refined, ... 40 c. per gal.
Natural History, Specimens, not for sale, ... Free.
*Nickel, ... 30 c. per lb.
* " Oxide, ... 20 "
Nitre or Cubic, Nitrate Soda, Free.
Nutgalls, ... "
Nutmegs, ... 20 c. per lb.
Nuts, all used in Dyeing, and not otherwise provided for, Free.
Nux Vomica, ... "
Oatmeal, ... ½ c. per lb.
Ochre and Ochrey Earths, all colors, not otherwise provided for, ...
Ochres, when dry, . . 50 c. per 100 lbs.
Ochres, when in Oil, . $1.50 per 100 lbs.
Odors or Perfumes, . . . 50 per cent.
Odors or Perfumes containing Spirit, . . . 50 p. c. and $3 per gal.
Œnanthic Ether, ... $4 per oz.
*Oil Cloth, medicated, not silk, ... 45 per cent.
*Oil Cloth, medicated, silk, 60 per cent.
Oil Seeds of like character with Hemp and Rape, excepting Linseed, . . . ½ c. per lb.
Oils, Absinthe or Wormwood, 50 per cent.
" all Animal, not otherwise provided for, . 20 per cent.
" all Essential, not otherwise provided for, . 50 per cent.
" all Expressed, not otherwise provided for, . 20 per cent.
" Almonds, Essential, . Free.
" " Expressed, . "
" Amber, Essential, Crude and Refined, . "
" Ambergris, ... "
" Aniline, Crude, . . . "
" Aniseed, ... "
" Anthos, ... "
" Apple, ... $2 50 per lb.
" Apricot, ... $2 50 "
" Bay Leaves, Essential, $17 50 "
" Bay or Laurel, fixed or expressed, ... 20 c. per lb.
" Bay Rum or Essence, . 50 c. per oz.
" Bears, ... 50 per cent.
" Benne, ... Free.
" Bergamot, ... "
" Cajeput, ... "
" Caraway, ... "
" Cassia, ... Free.
" Castor, Expressed, . . $1 per gal.
" Cedrat, Essential, . . Free.
" Cenne, ... 30 c. p. gal.
" Chamomile, ... Free.
" Chinese Pea Nut, . . 20 per cent.
" Cinnamon, ... Free.
" Citronella, ... "
" Civet, ... "
" Cloves, ... $2 per lb.
" Coal, Crude, ... 15 c. per gal.
" " Refined, . . . 40 c. per gal.
" Cocoanut, ... Free.
" Cod and Cod Liver Oil, in bulk, ... 20 per cent.

Oils, Cod Liver in Bottles, . 40 per cent.
" Cognac, ... $4 per oz.
" Cotton Seed, ... 30 c. per gal.
" Croton, ... $1 per lb.
" Cubebs, ... $1 "
" Cumin, Essential, . . 50 per cent.
" Fennel, ... Free.
" Fish of American Fisheries, ... "
" Fish, of Foreign Fisheries, ... 20 per cent.
" Flaxseed, 7¼ lbs. per gal., 30 c. per gal.
" Fruit, made of Fusel-Oil, Imitation, . . . $2 50 per lb.
" Fusel, ... $2 per gal.
" Haarlem, ... 50 per cent.
" Hempseed, ... 23 c. per gal.
" Jasmin, ... Free.
" Juglandin, Essential, . "
" Juniper, ... "
" Lavender, ... "
" Lemon Grass, ... "
" Lemons, Essential, . . 50 c. per lb.
" Limets, ... 50 per cent.
" Mace, Expressed, . . Free.
" Mustard, Expressed, . 25 c. per gal.
" " Salad, . . . $1 per gal.
" Neatsfoot, ... 20 per cent.
" Olive Salad, in Flasks or bulk, ... $1 per gal.
" Olive, ordinary, . . . 25 c. p. gal.
" Orange, Essential, . . 50 c. per lb.
" Origanum, Red, . . . Free.
" " White, . . "
" Otto Roses, ... "
" Palm, ... "
" Peach, ... $2 50 p. lb.
" Peanut, Exp., . . . 20 per cent.
" Pear, ... $2 50 p. lb.
" Perfumed by Enfleurage, if not Essential, 20 per cent.
" Poppies, ... Free.
" Rape Seed, ... 23 c. per gal.
" Raspberry, ... $2 50 p. lb.
" Rhodium, ... Free.
" Rock, Crude, ... 20 per cent.
" Rosemary, ... Free.
" Roses, ... Free.
" Seal, ... 20 per cent.
" Sesame, ... Free.
" Spermaceti, ... 20 per cent.

Oils, Spermaceti, Am. Fisheries, Free.
" Strawberry, ... $2 50 p. lb.
" Thyme, Red and White, Free.
" Turpentine, ... 30 c. p. gal.
" Valerian, ... Free.
" Vegetable, all Essential, not otherwise provided for, . . . 50 per cent.
" Vegetable, all Expressed, not otherwise provided for, ... 20 "
Olives, green or prepared, . . Free.
Orange Peel, Crude, . . . "
Orchill, Weed or Liquid, . "
Oranges, ... 20 per cent.
Orpiment, ... Free.
Osmium, ... "
Palladium Metal, ... "
*Paper, Filtering, ... 35 per cent.
Paraffine, ... 10 c. per lb.
Patent Medicines, ... 50 per cent.
Pearlash, ... 1½ c. per lb.
Pencils, Hair, ... 35 per cent.
Pepper, all kinds, ground, . 10 c. per lb.
" " unground, 5 c. "
" dust, ... 5 c. "
Perfumeries of which Alcohol forms principal ingredients, . 50 per cent. and $3 p. gal.
Perfumeries for the Hair, Mouth, and Skin, not otherwise provided for, . . . 50 per cent.
Phosphorus, ... 20 "
Phosphuret Lime, ... 20 "
Picrotoxine, ... 40 "
Pimento, ... 5 c. per lb.
" ground, ... 10 c. "
Pink Root, ... 20 per cent.
Pink Saucers, ... 50 "
Pitch, ... 20 "
" Burgundy, ... Free.
Plantains, ... 10 per cent.
Plaster, Adhesive, ... 40 "
Platina, ... Free.
* " Manufactures of, not otherwise provided for, ... 40 per cent.
" Vases and Retorts, . Free.
" parts of for Chemical use, ... Free.

Polishing Powders of all descriptions, ... 25 per cent.
Polishing Stones, ... Free.
Polypodium, ... 20 per cent.
Pomegranate Peel, . . . 20 "
Pomegranates, ... 10 "
Poppy Heads, ... 20 "
Potash, Crude, ... 20 "
" Bicarbonate, . . 1½ c. per lb.
" " Medicinal, 40 per cent.
" Bichromate, . . . 3 c. per lb.
" Calcined, ... 1½ "
" Chlorate of, . . . 3 "
" Chromate of, . . . 3 "
" Hydrate of, . . . 1½ "
" " (Caustic, Med.), 40 per cent.
" Iodate and Iodide of, 75 c. per lb.
" Nitrate of, refined, . 3 "
" Prussiate of, Red, . 10 "
" " Yellow, 5 "
Potassa, Muriate of, . . . Free.
Potassium, Bromide, . . . 40 per cent.
Powder Puffs, ... 35 "
Powders, Polishing, . . . 25 "
Preparations, Chemical, not otherwise provided for, . 20 "
Preparations, Medicinal, not otherwise provided for, . 40 "
Pumice and Pumice Stone, . Free.
Purple Tin Liquor, . . . 20 per cent.
Putty, ... $1 50 per 100 lb.
Quassia Wood, ... Free.
*Quicksilver, ... 15 per cent.
Quinine, all salts of, not otherwise provided for, . 45 "
Quinine, Amorphous, . . . 20 "
" Sulphate, . . . 20 "
Rasped Cornu Cervi, . . . 20 "
Red Precipitate, ... 20 "
Rennets, Raw or Prepared, . Free.
Resin, ... 20 per cent.
" of Scammony, . . . Free.
" " Jalap, ... 40 per cent.
" " Nux Vomica, . . 40 "
Resinous Substances, used for like purposes with Gum Copal, ... 10 c. per lb.
Resins, Crude, not otherwise provided for, ... Free.
Resins, Gum, not otherwise provided for, ... 20 per cent.
Roots, all bulbous, not otherwise provided for, . . . 30 per cent.
Roots, Medicinal, not otherwise provided for, . . . Free.
Rose Leaves, ... "
" Water, ... 50 per cent.
" Wood, ... Free.
Rottenstone, ... "
Rouge, ... 50 per cent.
Rye Flour, ... 10 "
Safflower, ... Free.
" Extract of, . . . "
Saffron, ... "
" Cake, ... "
Sago, Crude, and Sago, and Sago Flour, ... "
Salicin, ... "
Sal Acetosella, ... 20 per cent.
" Ammoniac, ... 10 "
Salep, ... Free.
Salæratus, ... 1½ c. per lb.
Saltpetre, Crude, ... 1 "
" Refined, Partially Refined, . . . 2 "
Salts, and Preparations of, not otherwise provided for, 20 per cent.
Salts, same, unspecified, if medicinal, ... 40 "
Salts, Brown, ... 20 "
" Dung. See Chlor Kalium.
" Epsom, ... 1 c. per lb.
" Glauber, ... ½ c. "
" Iodine, ... 15 per cent.
" Morphine, ... $1 per oz.
" Tin, ... 30 per cent.
" Rochelle, ... 5 c. per lb.
Sandal-wood, ... Free.
Santonine, ... $3 per lb.
Sealing Wax, ... 35 per cent.
Sea-weed, not otherwise provided for, ... Free.
Seed, Agricultural, not otherwise provided for, . . . 20 per cent.
Seed, Medicinal, not otherwise provided for, . . . Free.
Seed, Castor or Castor Bean, { 60 c. per bu. / 50 lbs.
" Celery, ... 20 per cent.
" Cotton, for planting, . 20 "
" Flax, or Lin., 20 c. per bush. 56 lbs.

Seed, Flower, not otherwise provided for, . . 20 per cent.
" for manufacturing purposes, not otherwise provided for, . . Free.
" Garden, not otherwise provided for, . . 20 per cent.
" Hemp, ... ½ c. per lb.
" Poppy, for manuf. Oil, ½ "
" " Medicinal, . Free.
" Rape, ... ½ c. per lb.
" Sesame, ... Free.
*Silver Leaf, per package 500 Leaves, . 75 cents per package.
" Nitrate, ... 40 per cent.
Skins, Chamois, ... 25 "
" Split, ... 25 "
Soap, all not otherwise provided for, 1 c. p. lb. and 30 p.c.
" Fancy, Honey, Perfumed, 10 c. p. lb. and 25 per c.
" Soft, . 1 c. per lb. and 30 per cent.
Soda, all carbonates of, not otherwise provided for, . 20 "
Soda, Arseniate, ... 20 "
" Ash, ... ½ c. per lb.
" Bicarb., ... 1½ "
" Carbonate, ... ½ "
" Caustic, ... 1½ "
" Iodate, ... 20 per cent.
" Hydriodate, ... 20 "
" Hyposulphate, . . . 20 "
" Lye, ... 20 "
" Nitrate of, or Cubic Nitre, Free.
" Phosphate of, Crude, . 20 per cent.
" Phosphate of, same as Medicinal Preparations, ... 40 per cent.
" Powders, ... 20 "
" Sal, ... ½ c. per lb.
" Salts of, not otherwise provided for, . . 20 per cent.
" Salts of, not otherwise provided for, if Medicinal Preparations, . 40 "
" Silicate of, ... ½ c. per lb.
Sodium, ... 20 per cent.
Solanine, ... 40 "
Sounds, Fish, same as Fish-glue.
Soy, ... 35 "
Specimens of Natural History, Mineralogy, and Botany, when imported for cabinets, as object of Taste or Science, not for sale, . Free.
Spices, all, not otherwise provided for, unground, . . 20 c. per lb.
Spices, ground or prepared, 30 per cent.
Spirits Turpentine, . . . 30 c. p. gal.
" Yellow, ... 20 per cent.
Sponges, ... 20 "
Spunk, ... Free.
Starch, burnt, or Gum substitute, ... 10 per cent.
Storax, ... Free.
Strontia, ... 20 per cent.
" Muriate and Nitrate of, 20 per cent.
" Oxide or Protoxide of, Free.
Strychnia, ... $1 per oz.
" Salts of, not otherwise provided for, $1 50 p. oz.
Sugar of Milk, ... Free.
" " Lead, White, . . 10 c. per lb.
" " " Brown, . . 10 "
Sulphur, Flour of, . $20 p. ton and 15 p. c.
Sulphuric Ether, ... $1 per lb.
Sumac, ... 10 per cent.
Talc, ... Free.
Tamarinds, in their rough and natural condition, and retaining their acid flavor, "
Tamarinds, Preserved in Sugar, Brandy, or Molasses, 35 per cent.
Tannin, ... $2 per lb.
Tanning, Crude articles for, not otherwise provided for, Free.
Tapioca, ... "
Tar, Crude, ... 20 per cent.
Tartar, Cream of, ... 10 c. per lb.
" Crude or Argol, . . Free.
" Partially Refined, as Brown Tartar, . . 6 c. per lb.
Tartar Emetic, or Tart. Antimony, ... 15 c. per lb.
Tea, ... Free.
Terra Alb., Aluminous, . . "
" other, ... 20 per cent.
Tin Crystals, ... 30 "
*Tin Foil, ... 30 "
* " Granulated, ... Free.
" Liquor, ... 20 per cent.

*Tin, Manufactures of, not otherwise provided for,	35 per cent.
Tin, Muriate of,	30 "
" Oxide of,	30 "
" Salts of,	30 "
Tinctures, Fragrant,	50 "
" Medicinal,	40 "
" Proprietary Patent Medicines,	50 "
Tripoli,	Free.
Troches,	50 per cent.
Turkish Red Salts,	20 "
Turmeric,	Free.
*Tweezers, Steel,	45 per cent.
Twines, all of whatever material, not otherwise provided for,	35 "
Twines, Flax,	40 "
Tyrian Dye,	20 "
Uranium, Oxide of,	Free.
Vaccine Virus,	"
Varnishes, 8 lb. to a gallon, value $1.50 or less,	50 c. per gal. & 20 per ct.
Varnishes, 8 lb. to a gallon, value higher,	50 per cent. & 25 per ct.
Venice Turpentine,	Free.
Verdigris,	"
Vinegar, requiring 35 grs. Bicarbonate Soda to neutralise 1 oz. Troy thereof,	10 c. per gal.
Vinegar, of greater strength, according to same standard,	
Wafers,	Free.
Wax, Bay,	"
" Bees,	20 per cent.
" Brazilian,	Free.
Wax Candles, Pure or Mixed,	8 c. per lb.
" Chinese,	Free.
" Japan,	20 per cent.
Wax, Manufactures of, not otherwise provided for,	20 "
Wax, Sealing,	35 "
Wedgewood Ware, White,	40 "
Weid,	Free.
Whiting,	1 c. per lb.
Wines, all in Cask, and containing not over 22 per cent. Alcohol, valued at not over 40 c. per gallon,	25 c. per gal.
Wines, over 40 c., and not over $1 per gallon,	60 "
Wines, over $1,	$1 per gal. & 25 per cent.
Wines, Champagne and other Sparkling, in Bottles of ½ Pint or less each,	$1.50 per doz.
Wines, Champagne and other Sparkling, in Bottles of 1 Pint and over ½ pint each,	$3 "
Wines, Champagne and other Sparkling, in Bottles of over 1 Quart each,	$2 per gal. on excess, and $6 per doz.
Wines, all in Bottles, in addition to above duty,	3 c. per bot.
Woods, Dye, not otherwise provided for,	Free.
Yeast Cakes,	"
Yellow Berries,	"
Zaffre,	"
*Zinc, Manufactures of, not otherwise provided for,	35 per cent.
Zinc, Oxide, Medicinal,	40 "
" Sulphate of,	20 "
" Valerianate of,	40 "

All articles marked * are subject to a discount of 10 per cent. from rates given above.

On all goods, wares, and merchandise of the growth or produce of countries east of the Cape of Good Hope (except wool, raw cotton, and raw silk), when imported from places west of the Cape of Good Hope, a duty of 10 per cent. is imposed in addition to the duties on any such article when imported directly from the place or places of their growth or production.

PHILADELPHIA, August, 1872.

The Philadelphia Drug Market has been active during the year, with a considerable increased Southern and Western trade. As usual, a large business has been done in indigenous roots, barks, herbs, &c. An effort was made to ascertain the amount received by our commission merchants and others, but the information received was not deemed reliable enough to place in this report.

The importation of drugs into this port from June 30th, 1871, to June 30th, 1872, amounts to $1,010,100, being an increase over the previous year. This amount does not represent all the drugs imported by our merchants; the want of vessels for our port causes many to have their goods entered at other ports. This difficulty will be somewhat removed hereafter. Two lines of steamers have lately been put on between this city and Europe. Another line, consisting of four first-class steamers, will be started this year. These additional facilities will cause our imports to be much larger than the previous year.

The retail druggists of this city have, as far as heard from, reported a good business for the year. They complain of some cutting down prices, which practice is to be deplored. An effort was made to close their stores at 9 o'clock in the evenings, but as a few only were willing to close at that time, the project was dropped for the present.

An effort was made again, this year, to obtain the amount of production of certain chemicals from our large manufacturers, but without success. It would have been very interesting to have had a statistical table of manufactured goods. Your committee hopes the Association will soon be furnished with such a report. Philadelphia still leads in chemicals.

Beeswax has been abundant in this market. The estimated amount received during the year is placed at 75,000 pounds; quality has averaged good, price, in large lots, 38 cents.

Virginia Snake Root has been scarce, and the quality only fair. Price 35 cents.

Senega Snake Root, small quantity was received, and prices

ruled high, now held at 95 cents. The quality is good; estimated amount received was 7000 pounds.

Pink Root.—About 3000 pounds were received. It was mixed with dirt, and sold at a low price. Several good parcels were received, and sold as high as 40 cents.

Oil, Sassafras.—Large quantities came into our market, and of very good quality. Much of it was exported. Prices have fallen somewhat, owing to the large supply.

Oil, Wintergreen.—Small lots only have been received, of good quality. Prices ruled high during the year.

Sulphate of Quinine has been in good demand. Price was advanced to $2.50 per ounce, at which price it is very firm. During last fall it became scarce, and speculators ran prices up to $4.00 per ounce. The foreign article is kept out of our market, owing to the liberality of our home manufacturers. As barks have advanced very much, it is not likely that the price of quinine will be any lower for some time to come. While on quinine, it will be of interest to our members to know how highly the American article is held by the people. The Philadelphia *North American and United States Gazette* of October 30th, 1871, says: "Sulphate of quinine has been largely and successfully manufactured in our city for many years past, and it should be a matter of pride, we think, that so valuable a remedial agent has been prepared and brought to perfection in this country and by our own fellow-townsmen. So beautiful is the American sulphate of quinine in appearance, and so reliable in quality, as not only to rival the products of the leading chemical houses of England, France, and Germany, but to obtain almost invariably the preference in the home market, at the same and even a higher price."

The Peruvian barks of equal grade cost more to-day than they did last year, and it must be evident that the manufacturers of quinine take as a basis for their calculations the actual cost of the crude material laid down in their warehouses, in determining the value of the manufactured article.

That barks have so advanced as to more than overcome the difference made by the removal of duty, we are assured, and it will be found that sulphate of quinine has also advanced

this year in England, France, and Germany, and very much more than in this country, as will be seen by the following:

In October, 1870, English quinine was quoted at 6*s.* 3*d.* per ounce; in October, 1871, it is quoted at 7*s.* 9*d.* per ounce; an advance of 25 per cent.

In October, 1870, French quinine was quoted at 5*s.* 11*d.*; in October, 1871, it is quoted at 7*s.* 8*d.* per ounce; an advance of over 25 per cent.

In October, 1870, German quinine was quoted at 33 thalers per pound; in October, 1871, it is quoted at 45 thalers per pound.

In October, 1870, American quinine was quoted at $2.30 per ounce; in October, 1871, it is quoted at $2.50 per ounce; an advance of 9 per cent.

The present difference in price between quinine here and in Europe is accounted for if we consider but two points, namely, the heavy tax upon alcohol, there being no discrimination in this country, as in England, in favor of the manufacturers, and the liberal wages paid for labor, which enable the American to live with much more comfort and enjoy many more privileges than the foreign workman.

The value of having this article made here, and held by responsible and non-speculative manufacturers, for prompt delivery and at fair prices, at times when it is an absolute necessity throughout large sections of our country, must be apparent.

Other manufactured goods have been in active demand. Nothing of special interest to note in them. Prices rule higher, and, should the demand increase, will advance.

Respectfully,

R. M. SHOEMAKER.

REPORT OF THE COMMITTEE ON LEGISLATION.

In the report submitted last year, your committee recorded the passage of a new pharmaceutical law in March, 1871, for the State of Rhode Island. From the report of the State Board of Pharmacy, made to the Legislature in January last, we extract the following, which shows the manner in which the law has been carried out, and one of the immediate effects of it,—the organization of a class for the systematic instruction in one of the fundamental sciences, underlying pharmacy; and although the establishment of a Pharmaceutical College is not contemplated, it may result ultimately in the establishment of preparatory schools for the teaching of young men intending to embrace pharmacy as a profession, and of the apprentices, in the principles of the various branches of natural science, in the knowledge of which many of our apprentices are deficient, entering as they frequently do upon their business career directly from the public schools, where natural sciences are but superficially taught, if at all. Young men who have passed through the high schools, or similar institutions, where considerable time is devoted to the teaching of the natural sciences, as a general rule, make better and more devoted students in pharmacy. The establishment and multiplication of such preparatory schools may ultimately exert a powerful influence upon the courses of lectures as at present conducted at our established Colleges of Pharmacy, where from necessity much time has to be devoted to the teaching of the fundamental principles of the different branches, while they might, if aided by the preparatory studies in such schools, devote their whole time to higher scientific instructions.

The complaint made by the Rhode Island State Board in regard to the necessity imposed upon pharmacists by existing laws to become licensed liquor dealers, is a just one, but

the remedy does not lie, primarily, with the State Legislatures, but with Congress, from which power perhaps little help may be expected under existing circumstances. Upon this question, however, a special committee, appointed at the last meeting, will probably submit to the present meeting a detailed report.

Your committee also desire to draw attention to the notice, in the annual report of the Rhode Island State Board, of the decease of one of its members, who has likewise been a devoted member of this Association, although he did not take any active part in our transactions.

We copy from the report in question as follows:

"In our own State, the progress of pharmacy has been slow, but still forward and upward, sufficient to warrant a hope that a higher standard of knowledge and attainment will ere long obtain among our pharmacists and their assistants.

"To carry out the provisions of the new act, passed March, 1871, the Board organized by the election of Albert L. Calder, President, and Norman N. Mason, Secretary and Registrar, and issued a circular schedule of questions to each of the registered pharmacists of the State, to which answers were to be returned, subscribed to under oath. This was complied with almost without exception, and when such answers were considered by the Board satisfactory evidence of the qualifications of the applicant, registration was granted; and where it was not so considered, the applicant was summoned before the Board for a personal examination. This, although bearing rather hard upon some, has been generally acquiesced in. And those who failed in their examinations have, in some cases, disposed of their business, and others are waiting the opportunity of doing so.

"The Board held frequent meetings during the year for the transaction of business, and the examination of applicants for registration as pharmacists and assistant pharmacists. The young gentlemen presenting themselves for examination as assistants showed a marked improvement in their knowledge of pharmacy over those of last year, notwithstanding the standard has been advanced and the questions propounded more numerous and difficult. But there is still a great want of a knowledge of pharmaceutical chemistry, which is necessary to the thorough education of a practical pharmacist, and which it is hoped the teachings of the Polytechnic School may in future furnish.

"In the absence of a much-needed school or college of pharmacy, a class was instituted for the study of pharmacy, in the Polytechnic School attached to the system of public evening schools of the city of Providence. This class was given in charge of Mr. Norman N. Mason, Secretary of this Board, who continued his teachings during the duration of the school term. The class

consisted, at its commencement, of twenty-five members, and although conducted under many disadvantages, yet it was a beginning in the right direction, and was of much benefit to the students who availed themselves of its teachings. Instruction was given in pharmacy, in pharmaceutical chemistry, and in the general properties of those elementary bodies and their compounds, which are used for the cure and prevention of disease.

"The Board would once more repeat the remarks contained in their last annual report, relative to the law regulating the sale of liquors, and to express a desire that whilst that law is undergoing a revision some provision may be included therein, whereby the pharmacists may not be compelled to become licensed liquor dealers, but be permitted to sell under proper and stringent restrictions the prohibited medicines which it is necessary for them to keep and dispense.

"The Board are called upon to record with sorrow and regret the decease of their associate, Mr. Robert J. Taylor, of Newport, who died at his residence in that city, on the twentieth day of December, A.D. 1871. Mr. Taylor has been a faithful and efficient member of the Board since its organization, and his long experience of nearly half a century as a pharmacist, made his practical wisdom and judicious counsel of invaluable aid in all the transactions of the Board.

"In conclusion, the Board would express their satisfaction with the workings of the law, and their belief that its continued judicious enforcement will gradually purge the profession of its abuses, and tend to elevate it to the position to which it belongs as a co-laborer and worker with the medical profession, in the cause of sick and suffering humanity."

The united efforts of the Pharmacists of the City of New York have been crowned with a decided victory, and the iniquitous law which had been saddled upon them the year previous, has been repealed by act of the Legislature, approved by Governor Hoffman, May 22d. The new law grants to the New York College of Pharmacy authority to appoint the Examining Board, and to register the pharmacists and their assistants. A peculiar feature of the law is, that it constitutes the Examining Board of five competent pharmacists, three of whom shall be graduates in medicine and two graduates in pharmacy. Since all five are required to be pharmacists, the appointment of graduates in medicine has not the objectionable feature it would otherwise possess. The Board has been constituted as follows: William Neergaard, M.D., W. Manlius Smith, M.D., F. Weismann, M.D., Paul Balluff, and Theobald Frohwein.

In this law the feature of the old one, *requiring an examination of all pharmacists in business at the time of its passage*,

has been retained. While there are certainly weighty reasons for such a clause, the propriety of which is defended mainly as a regulation of sanitary police, it cannot be concealed that there are likewise weighty objections to it, mainly based upon the view that this is actually an *ex post facto* law and unconstitutional for this very reason. However, under the new order of things, this position of the law seems to be as generally acquiesced in in New York City, as in the State of Rhode Island, and unless this provision should be contested in court, and legal decision obtained thereon by the highest tribunal, it cannot be said which of the two views is the correct one.

At the request of the pharmacists of the City of Baltimore, the law enacted for that city in 1870, was amended so as to require also the registration of managing assistants; the words "Registered Pharmacist" must be displayed in front of every store, and diplomas of Colleges of Pharmacy are to be recognized only if based upon a full apprenticeship of four years. It also contains provisions relating to the heirs of deceased pharmacists, and several other improvements of less importance. The law of 1870, has had a beneficial effect upon pharmaceutical affairs in Baltimore, and the now more stringent and perfect one is another step in the right direction for regulating the practice of pharmacy in that city, and for purging it gradually from the various irregularities. The appointing power, as heretofore, is vested in the Governor, who has to choose from the nominees presented by the Maryland College of Pharmacy, to which institution also goes a portion of the fines imposed by this act. The present Commissioners of Pharmacy and Practical Chemistry are: J. Brown Baxley, Phar.D., Louis Dohme, and Richard Sappington, M.D.

The first pharmaceutical law on our Pacific Coast was passed last spring, and approved by the Governor of California in March last. It is based upon the law as drafted by the pharmacists of New York, which forms the basis also of the New York law. The power of appointing the Board of Pharmacy and of Registration is vested in the California Pharmaceutical Society; the Board is appointed annually. The

registered pharmacists are divided into four classes, viz., graduates, licentiates, practicing pharmacists, and assistant practicing pharmacists, all being exempt from jury duty. The Board consists of Messrs. John Calvert, President, James G. Steele, Secretary, William J. Wenzell, William Simpson, and J. W. Forbes.

In Philadelphia, the struggle in regard to pharmaceutical legislation was renewed last winter. A bill was introduced into the Legislature which was merely the famous Irving bill for New York City applied to a whole State, rendered still more objectionable by increasing the bad features of the former; it was to all appearances gotten up with the view of rewarding so-called political services, as the fees were exorbitant, and the whole were to be applied to pay a State Board of three physicians, to be appointed by the Governor. The bill, however, prepared by a Committee of the Pharmacists of Philadelphia, passed both houses, but was vetoed by the Governor, upon some flimsy pretexts, all of which were incorrect. Finding, however, that the bill could not be passed over the Governor's veto, a few of the provisions were altered, and in this amended shape it passed both houses, and received the Governor's signature. The bill vests in the Mayor of Philadelphia the power to appoint a Pharmaceutical Examining Board of five pharmacists, for which position, at the request of Mayor Stokley, the Board of Trustees of the Philadelphia College of Pharmacy nominated ten candidates. The bill provides for the registration of all pharmacists in business at the time, requires the examination and registration of all managers and pharmacists entering into business afterwards, but recognizes graduates of the Colleges of Pharmacy; stores are to be left in charge only of qualified assistants, and provision is made for the punishment of adulterating drugs or medicinal substances. The Board consists of Messrs. James N. Marks, President, James T. Shinn, Secretary, Prof. Edward Parrish,* Charles L. Eberle, and Robert England.

* The vacancy occasioned by the death of Prof. Parrish, was filled by the appointment of Henry B. Lippincott.

In New York and Pennsylvania, the success of these measures is in a great degree due to the exertions of two pharmacists, at the time members of the respective Legislatures, namely, to Hon. —— Weismann, Senator of New York, and Hon. J. N. Marks, Representative from Philadelphia.

In New Jersey, Ohio, and several other States, similar bills had been introduced, but were defeated. It is to be hoped that the friends of pharmaceutical legislation will not be discouraged by such failures, but renew their efforts until finally triumphant.

The four laws reported on above are here attached. All of which is respectfully submitted.

JOHN M. MAISCH,
Chairman.

I. NEW YORK PHARMACY ACT.

An Act to regulate the Practice of Pharmacy and the Sale of Poisons in the City and County of New York.

THE PEOPLE OF THE STATE OF NEW YORK, REPRESENTED IN SENATE AND ASSEMBLY, DO ENACT AS FOLLOWS:

SECTION 1. It shall be unlawful from and after the first day of June, one thousand eight hundred and seventy-two, for any person unless a registered pharmacist, known as a graduate in pharmacy, or as a licentiate in pharmacy within the meaning of this act, to open or conduct any pharmacy or store for retailing, dispensing or compounding medicines or poisons in the City and County of New York, except as hereinafter provided.

SECTION 2. Any person, in order to be registered, shall be either a graduate in pharmacy or a licentiate in pharmacy, or a graduate having a diploma from some medical college or society.

SECTION 3. Graduates of pharmacy, within the meaning of this act, shall be those persons who have had at least four years' experience in stores where prescriptions of medical practitioners have been compounded, and who have obtained a diploma from any college of pharmacy within the United States or from some authorized foreign institution or examining board; and licentiates in pharmacy shall be those persons who have had at least four years' experience in stores where prescriptions of medical practitioners are compounded, and who shall have passed an examination either before the board for the examination of and licensing druggists and prescription clerks in the city of New York, established by an act passed March twenty-eight, one thousand eight hundred and seventy-one, or before the Board of Pharmacy to be created by this act, or such foreign pharmacists as shall present satisfactory creden-

tials or certificates of their competency and qualifications to the said board of pharmacy. Junior assistants or apprentices in pharmacy shall not be permitted to prepare physicians' prescriptions until they have become graduates or licentiates in pharmacy.

SECTION 4. The members of the College of Pharmacy of the City of New York shall, on the first Monday of June, one thousand eight hundred and seventy-two, and on the same day every third year thereafter, at a special meeting held for that purpose, elect five competent pharmacists, three of which shall be graduates of some legally constituted medical college and the remaining two graduates of some legally constituted college of pharmacy, of the City of New York, and who shall form and be known as a Board of Pharmacy. The members of this board shall, within thirty days after their election as aforesaid, individually take and subscribe before the clerk of the county of New York, an oath, faithfully and impartially to discharge the duties prescribed for them by this act. They shall hold office for the term of three years and until their successors are duly elected and qualified; and in case of any vacancy, the trustees of the College of Pharmacy shall fill the same from two or more nominees elected at a special meeting of the College of Pharmacy. The said board shall organize for the transaction of business by the election, by them, from their number, for the whole term, of a president and a secretary. The board shall meet at least once every three months, and three members shall constitute a quorum. The duties of the said board shall be to transact all business pertaining to the legal regulation of the practice of pharmacy in the City of New York, and to examine and register pharmacists. Any pharmacist applying for examination shall pay to the secretary a fee of five dollars, and should he pass such examination satisfactorily he shall be furnished with a certificate as to his competency and qualification, signed by the said board of pharmacy.

SECTION 5. It shall be the duty of the secretary to keep a book of registration at some convenient place, of which due notice shall be given through the public press, in which book shall be entered, under the supervision of the said board, the names and places of business of all persons coming under the provisions of this act. It shall be the duty of all such persons to appear before the said board for registration within thirty days after its organization; and the fee for the registration of pharmacists shall not exceed two dollars, and for assistants shall not exceed one dollar. The secretary shall give receipts for all moneys received by him, and pay over the same to the treasurer of the College of Pharmacy aforesaid, taking his receipt therefor, which moneys shall be used for the purpose of defraying the expenses of the Board of Pharmacy, and any surplus shall be for the benefit of the College of Pharmacy. The salary of the secretary shall be fixed by the board, and shall be paid out of the registration fees.

SECTION 6. Every registered pharmacist, from and after the first day of June, eighteen hundred and seventy-two, shall be held responsible for the quality of all drugs, chemicals, and medicines he may sell or dispense, with the exception of those sold in the original packages of the manufacturer, and also those known as "patent medicines," and should he knowingly, intention-

ally, and fraudulently adulterate, or cause to be adulterated, such drugs, chemicals or medicinal preparations, he shall be deemed guilty of a misdemeanor, and, upon conviction thereof, be liable to a penalty not exceeding one hundred dollars, and, in addition thereto, his name shall be stricken from the register.

SECTION 7. It shall be unlawful for any person, from and after the first day of June, eighteen hundred and seventy-two, to retail any poison enumerated in Schedules A and B, as follows, to wit:

SCHEDULE A.

Arsenic and its preparations, corrosive sublimate, white precipitate, red precipitate, biniodide of mercury, cyanide of potassium, hydrocyanic acid, strychnia, and all other poisonous vegetable alkaloids and their salts, essential oil of bitter almonds, opium and its preparations, except paregoric and other preparations of opium containing less than two grains to the ounce.

SCHEDULE B.

Aconite, belladonna, colchicum, conium, nux vomica, henbane, savin, ergot, cottonroot, cantharides, creosote, digitalis, and their pharmaceutical preparations, croton oil, chloroform, chloral hydrate, sulphate of zinc, mineral acids, carbolic acid and oxalic acid, without distinctly labelling the bottle, box, vessel or paper in which the said poison is contained, and also the outside wrapper or cover, with the name of the article, the word "poison," and the name and place of business of the seller; nor shall it be lawful for any person to sell or deliver any poison enumerated in said Schedules A and B, unless upon due inquiry it be found that the purchaser is aware of its poisonous character, and represents that it is to be used for a legitimate purpose. Nor shall it be lawful for any registered pharmacist to sell any poisons included in Schedule A, without, before delivering the same to the purchaser, causing an entry to be made in a book kept for that purpose, stating the date of sale, the name and address of the purchaser, the name and quality of the poison sold, the purpose for which it is represented by the purchaser to be required, and the name of the dispenser; such book to be always open for inspection by the proper authorities, and to be preserved for reference for at least five years. The provisions of this section shall not apply to the dispensing of poisons, in not unusual quantities or doses, upon the prescriptions of practitioners of medicine.

SECTION 8. Nothing contained in the foregoing sections shall apply to, or interfere with the business of any practitioner of medicine, who does not keep open shop for the retailing of medicines and poisons; nor with the business of wholesale dealers, excepting Section 7, and the penalties for its violation.

SECTION 9. Any person who shall attempt to procure registration for himself, or for any other person, under this act, by making or causing to be made, any false representation, shall be deemed guilty of a misdemeanor, and shall, upon conviction thereof, be liable to a penalty not exceeding five hundred dollars. Any registered pharmacist who shall permit the compounding and

dispensing of prescriptions of medical practitioners in his store or place of business, by any person or persons not registered, or any person not registered who shall keep open shop for the retailing or dispensing of medicines and poisons, or who shall fraudulently represent himself to be registered, or any registered pharmacist or dealer in medicines who shall fail to comply with the regulations and provisions of this act in relation to the retailing and dispensing of poisons, shall, for every such offence, be deemed guilty of a misdemeanor, and, upon conviction thereof, be liable to a penalty of fifty dollars.

SECTION 10. Each and every penalty recovered under this act shall be paid to the trustees of the College of Pharmacy, and shall form and be known as the library fund of said College of Pharmacy, and shall be expended for the purchase of books for the library of said College.

SECTION 11. Chapter two hundred and two of the laws of eighteen hundred and seventy-one, entitled "An Act to establish a Board for the examination of and licensing Druggists and Prescription Clerks in the city of New York," passed March twenty-eighth, eighteen hundred and seventy-one, and all previous acts and parts of acts relating to the city and county of New York, relating to the practice of pharmacy and the sale of poisons, are superseded by this act and are hereby repealed.

SECTION 12. This act shall take effect immediately.

STATE OF NEW YORK,
OFFICE OF THE SECRETARY OF STATE, } ss.

I have compared the preceding with the original law on file in this office, and do hereby certify that the same is a correct transcript therefrom, and of the whole of said original law.

Given under my hand and the seal of office of the Secretary of
[SEAL.] State, at the city of Albany, this thirty-first day of May, in the year one thousand eight hundred and seventy-two.

ANSON S. WOOD,
Deputy Secretary of State.

II. BALTIMORE PHARMACY ACT.

(Chapter 414 of the Public Laws of Maryland, 1872.)

An Act to prevent incompetent persons from conducting business as Pharmacists, or vending at retail Drugs, Medicines, or Chemicals for medicinal use in the city of Baltimore, and repealing the act, entitled "An Act to prevent incompetent persons from conducting the business of Druggist or Apothecary in the city of Baltimore," passed January Session, eighteen hundred and seventy, chapter one hundred and four.

WHEREAS, many unskilled and unqualified persons are engaged in vending at retail, mixing and compounding drugs, medicines, and chemicals, to the great danger of the health and lives of the people of the city of Baltimore, and as it is expedient that legislation be had to remedy said evil, therefore

SECTION 1. *Be it enacted by the General Assembly of Maryland*, That the term or name Pharmacists in the meaning and scope of this act, does mean, embrace and apply to all persons engaged in vending, at retail, drugs, medicines, and chemicals for medicinal use, and in compounding and dispensing physicians' prescriptions, either as owners of stores or as managing assistants in charge of stores.

SECTION 2. *And be it enacted*, That any person who, after the passage of this act, does vend or retail drugs, medicines or chemicals for medicinal use, or compound and dispense physicians' prescriptions in the city of Baltimore, without complying with the requirements of this act, unless he shall be employed under the circumstances contemplated in Section 9, shall be deemed guilty of misdemeanor and subject to a penalty or fine of fifty dollars for each and every week he shall continue to vend at retail drugs, medicines or chemicals for medicinal use, or compound and dispense physicians' prescriptions in the city of Baltimore without complying with all the requirements of this act, said penalty or fine to be sued for in the name of the Commissioners of Pharmacy and Practical Chemistry appointed under this act, and before a single Justice of the Peace in same manner as small debts now are, one-half of said penalty or fine to go to and be the property of the informer, the balance to be paid to the Treasurer of the Maryland College of Pharmacy for the use of said College.

SECTION 3. *And be it enacted*, That the Maryland College of Pharmacy shall nominate biennially, of the most skilled and competent pharmacists of the city of Baltimore, ten persons, from amongst whom the Governor shall appoint three Commissioners, whose duty it shall be to faithfully and impartially execute or cause to be executed all the provisions and requirements of this act; they shall, upon application, and in such manner and such place as they may determine, examine each and every person who shall desire to engage in vending at retail, drugs, medicines, or chemicals for medicinal use, or of compounding and dispensing physicians' prescriptions in the city of Baltimore, touching his competency and qualifications; and upon being satisfied that the person so examined is competent and qualified to vend, at retail, drugs, medicines, and chemicals for medicinal use, and compound and dispense physicians' prescriptions safely and without jeopardy to the health and lives of the people of the city of Baltimore, they or any two of them shall grant such person a certificate of competency and register him as a pharmacist.

SECTION 4. *And be it enacted*, That the Commissioners appointed under this act shall be styled and known as the Commissioners of Pharmacy and Practical Chemistry, and shall hold office for two years, and thereafter until their successors have been appointed and have qualified; said Commissioners shall, within thirty days after notification of their appointment, each subscribe to an oath before the Clerk of the Superior Court of Baltimore City to impartially and faithfully discharge the duties prescribed by this act. The position of any Commissioner appointed under this act who shall fail to so qualify within the time and in manner named, shall be vacant. The Governor shall fill all vacancies occurring from amongst the persons nominated by the Maryland College of Pharmacy under Section 3 of this act.

SECTION 5. *And be it enacted*, That each and every person, before com-

mencing to vend at retail, drugs, medicines, or chemicals for medicinal use, or to compound and dispense physicians' prescriptions in the city of Baltimore, as managing owner of a store or as managing assistant of a store, shall register as a pharmacist under the provisions of this act.

SECTION 6. *And be it enacted*, That every person who shall at the time that this act goes into effect be engaged in vending, at retail, drugs, medicines, and chemicals for medicinal use, and compounding and dispensing physicians' prescriptions in the city of Baltimore, and registered as an apothecary, under an act entitled "An Act to prevent incompetent persons from conducting the business of Druggist and Apothecary in the city of Baltimore," approved March the twenty-third, eighteen hundred and seventy, shall be deemed a registered pharmacist within the meaning of this act.

SECTION 7. *And be it enacted*, That every person holding a diploma, from the regular chartered and recognized college or school of pharmacy, based upon a full apprenticeship of four years as a pharmacist, and who presents satisfactory evidence of these facts to the said Commissioners of Pharmacy and Practical Chemistry, shall be deemed competent and entitled to register as a pharmacist.

SECTION 8. *And be it enacted*, That said Commissioners of Pharmacy and Practical Chemistry shall demand and receive from each applicant for a certificate of competency whom they examine, five dollars for each examination, and shall likewise be entitled to demand and receive one dollar from every person whom they register or re-register; the money received under the provisions of this section shall be used and applied by said Commissioners to defray the expenses accruing or arising under this act.

SECTION 9. *And be it enacted*, That in case of the death of a registered pharmacist, doing business as such in the city of Baltimore, the business of the said pharmacist may be continued by his heirs, executors or administrators for the benefit of said heirs for a period of six months, after which time, if the business is conducted by said heirs, executors or administrators, they must employ a registered pharmacist to conduct it.

SECTION 10. *And be it enacted*, That an act entitled "An Act to prevent incompetent persons from conducting the business of Druggist or Apothecary in the city of Baltimore," approved March the twenty-third, eighteen hundred and seventy, is hereby repealed and declared void of effect, so soon as the Commissioners of Pharmacy and Practical Chemistry shall be appointed and qualified under the provisions of this act, and that all acts and parts of acts so far as they conflict with this act are declared void and of no effect.

SECTION 11. *And be it enacted*, That this act shall take effect from the date of its passage.

Approved April 1st, 1872.

We hereby certify that the foregoing is a true copy of an act which passed the General Assembly of Maryland at the January session, 1872.

(Signed) AUGUSTUS GASSAWAY,
Secretary of Senate.

MILTON Y. KIDD,
Chief Clerk House of Delegates.

III. PHILADELPHIA PHARMACY ACT.

An Act to Regulate the Practice of Pharmacy and Sale of Poisons, and to Prevent Adulterations in Drugs and Medicinal Preparations in the City of Philadelphia.

WHEREAS, The safety of the public is endangered by want of care in the sale of poisons, whether to be used as such for legitimate purposes, or employed as medicines and dispensed on the prescriptions of physicians; *and whereas*, The power of physicians to overcome disease depends greatly on their ability to obtain good and unadulterated drugs, and skilfully prepared medicines; *and whereas*, The class of persons to which the preparation and sale of drugs, medicines, and poisons properly belong, known as apothecaries, chemists, and druggists, or pharmacists, should possess a practical knowledge of the business and science of pharmacy in all its relations; therefore,

SECTION 1. *Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania, in General Assembly met, and it is hereby enacted by the authority of the same*, That hereafter no person whatsoever shall open or carry on, in the city of Philadelphia, any retail drug or chemical store, as the proprietor or manager thereof, nor engage in the business of compounding or dispensing medicines on prescriptions of physicians, or of selling at retail any drugs, chemicals, poisons, or medicines, without having obtained a written certificate that he is duly competent and qualified to do so, from the Pharmaceutical Examining Board and having been duly registered, as hereinafter provided.

SECTION 2. That there shall be established in the city of Philadelphia, a Board to be styled The Pharmaceutical Examining Board, to consist of five persons, three of whom shall constitute a quorum, who shall be appointed by the Mayor of the city of Philadelphia, out of the most skilled and competent Pharmacists [at the time engaged in said business] in the said city, who shall be and constitute the said the Pharmaceutical Examining Board as aforesaid. The said persons shall hold their office for three years, and until their successors are duly appointed and qualified. They, and each of them, shall within ten days after their appointment, take and subscribe an oath, or affirmation, before the Clerk of the Court of Quarter Sessions of the Peace for the County of Philadelphia, that they will faithfully and impartially perform the duties of their office; and any vacancy occurring in said Board, shall be filled for the unexpired term by the Mayor of the said city.

SECTION 3. That the said the Pharmaceutical Examining Board shall keep a book of registration open at some convenient place, of which due notice shall be given by advertisement in at least two of the public newspapers of the city of Philadelphia, in which book shall be registered the name and address of every person duly qualified under this act to conduct the retail apothecary business. And it shall be the duty of all persons, now conducting, or who shall hereafter conduct, the business of retail apothecaries in said city, to appear before said Board, and be registered within thirty days after such notice.

SECTION 4. The said Pharmaceutical Examining Board shall be entitled

to demand and receive, from each applicant for such registration, and the certificate hereinafter provided for, a fee not to exceed five dollars ($5), to be applied to the payment of expenses arising under the provisions of this act.

SECTION 5. The duty of the said the Pharmaceutical Examining Board, shall be to examine every person who shall desire to carry on the business of a retail apothecary, or that of retailing drugs, chemicals, or poisons, or of compounding and dispensing physicians' prescriptions, touching his competency and qualification for that purpose; and upon the said Board or a majority of them being satisfied of such competency and qualification, they the said Board or a majority of them shall grant to such person a certificate of his competency and qualification, which certificate shall entitle the holder thereof to conduct and carry on the business as aforesaid.

SECTION 6. That if any person should hereafter engage in the business of an apothecary, or of retailing drugs, chemicals, and poisons, or of compounding and dispensing the prescriptions of physicians, either directly or indirectly, without having obtained such certificate as aforesaid, such person shall be liable to a penalty of one hundred dollars ($100) for each and every week during which they shall continue to carry on such business without such certificate as aforesaid, to be recovered by a suit to be brought before any alderman or in any competent court, in said city, by the said Board, or by any other person, for the use of the Guardians of the Poor for the City of Philadelphia, to whom the said penalties are to be paid.

SECTION 7. That the foregoing provisions of this act shall not apply to or affect any person who shall have a diploma or certificate, from any incorporated college or school of pharmacy, whose diploma or certificate is based upon a regular term of service in the drug and apothecary business, or who shall be engaged in the drug and apothecary business prior to the passage of this act, except only in so far as relates to registration, as provided for in Sections III and VI of this act.

SECTION 8. That no person not a graduate in pharmacy shall be allowed by the proprietor or manager of any store to compound or dispense the prescriptions of physicians (except as an aid under the immediate supervision of said proprietor or his qualified assistant), unless he has been at least two years apprenticed in a store where medicines are compounded and dispensed, and has attended one full course of lectures on chemistry, materia medica, and pharmacy; and no proprietor shall leave his store in charge of any but a qualified assistant. Any person violating the provisions of this section of this act shall be deemed guilty of misdemeanor, and on conviction thereof be liable to a penalty not exceeding one hundred dollars ($100).

SECTION 9. A qualified assistant, in the meaning of this act, shall be either a graduate in pharmacy holding a diploma, or certificate, of competency, based upon a regular term of service to the drug and apothecary business, from an incorporated college or school of pharmacy, or a person holding a certificate of competency and qualification from the Pharmaceutical Examining Board appointed under this act.

SECTION 10. That any person who shall knowingly, wilfully, or fraudu-

lently falsify or adulterate, or cause to be falsified or adulterated, any drug or medicinal substance, or any preparation authorized or recognized by the Pharmacopœia of the United States, or used, or intended to be used, in medical practice, or shall mix, or cause to be mixed, with any such drug or medicinal substance, any foreign or inert substance whatsoever, for the purpose of destroying or weakening its medicinal power or effect, and shall wilfully, knowingly, or fraudulently sell, or cause the same to be sold, for medicinal purposes, shall be guilty of a misdemeanor, and upon conviction thereof shall pay a penalty not exceeding five hundred dollars ($500), and shall forfeit to the Commonwealth all of the articles so adulterated.

SECTION 11. Nothing contained in this act shall apply to, or in any manner whatever interfere with the business of any practitioner of medicine, who does not keep open shop for the retailing, dispensing, or compounding of medicines and poisons, nor prevent him from administering or supplying to his patients such articles as may seem to him fit and proper, nor shall it interfere with the making and dealing in proprietary remedies [popularly called patent medicines].

Approved April 4th, 1872.

IV. SAN FRANCISCO PHARMACY ACT.

An Act to Regulate the Practice of Pharmacy in the City and County of San Francisco. Passed by the California Legislature, Session of 1871–2; *and Approved March* 28, 1872.

THE PEOPLE OF THE STATE OF CALIFORNIA, REPRESENTED IN SENATE AND ASSEMBLY, DO ENACT AS FOLLOWS.

SECTION 1. From and after the first day of June, A.D. eighteen hundred and seventy-two, it shall be unlawful for any person, unless a registered pharmacist, or a registered assistant pharmacist, within the meaning of this Act, to open or conduct any pharmacy or store, for retailing, dispensing, or compounding medicines or poisons, except as hereinafter provided.

SECTION 2. Any person in order to be registered must be either a graduate in pharmacy, a licentiate in pharmacy, a practicing pharmacist, or a practicing assistant pharmacist.

SECTION 3. Graduates in pharmacy must be such as have had four years' experience in stores where prescriptions of medical practitioners are compounded, and each must have obtained a diploma from a college of pharmacy within the United States, or from an authorized foreign institution or Examining Board. Licentiates in pharmacy are such as have had four years' experience in stores where prescriptions of medical practitioners are compounded, and shall have passed an examination before the Board of Pharmacy; also such foreign pharmacists as shall present satisfactory credentials, or certificates of their attainments to the Board of Pharmacy. Practicing pharmacists are such persons only as at or prior to the passage of this act have kept and continue to keep open stores in the city and county of San

Francisco, for compounding and dispensing of the prescriptions of medical practitioners, and for the sale of medicines and poisons. Practicing assistants in pharmacy are such persons, of not less than eighteen years of age, as at or prior to the passage of this act, have had two years' experience in the compounding of the prescriptions of medical practitioners in the store of a practicing pharmacist, and shall furnish satisfactory evidence of the same to the Board of Pharmacy. Persons of less than eighteen years of age, or less than four years' experience, are, as junior assistants or apprentices, to be under the immediate supervision of a registered pharmacist, or assistant pharmacist, until they have become graduates or licentiates in pharmacy.

SECTION 4. The members of the California Pharmaceutical Society, residing in San Francisco, shall, during the month of May, eighteen hundred and seventy-two, and every third year thereafter, during the month of May, elect five of the most competent pharmacists of San Francisco, to serve as a Board of Pharmacy. The members of this Board shall, within thirty days after their appointment, individually take and subscribe before the County Clerk, an oath, faithfully and impartially to discharge the duties prescribed by this act. They shall hold office for the term of three years, and until their successors are appointed and qualified, and in each case of vacancy the said Board of Examiners shall select from three nominees elected at a meeting of the said Society. The Board shall organize for the transaction of business in the city of San Francisco by the election for the whole term of President and Secretary. Three members of the Board shall constitute a quorum. They shall meet at least quarterly, and have power to make by-laws for the proper fulfilment of their duties. The duties of this Board shall be to transact all business pertaining to the legal regulations of the practice of pharmacy and the retailing of poisons, and to examine and register all pharmacists. All persons applying for examination shall pay to the Secretary a fee of five dollars; and on passing the examination, shall be furnished with a certificate signed by the President and the Examiners.

SECTION 5. It shall be the duty of the Secretary to keep a book of registration open at some convenient place, of which due notice shall be given through the public press, in which shall be entered, under the supervision of the Board, the names, titles, qualifications, and places of business of all persons coming under the provisions of this act; and it shall be the duty of all such persons to appear before the Board, or its Secretary, within a period of thirty days after its organization, and be registered. The fee for the first registration of graduates, licentiates, and practicing pharmacists, shall be two dollars; for assistants, one dollar. It shall be the duty of every person registered to have his registration renewed every year in the month of January, the fee for which shall be one dollar, and upon changing his place of business, or engagement, to notify the Secretary within thirty days. The Secretary shall make all necessary alterations in the register, and notify all persons, on or before the tenth day of February, who shall not have renewed their registration, for which notification the Secretary shall receive a fee of fifty cents; and in case no answer is received within fourteen days, such name shall be erased, unless an excuse satisfactory to the Board be presented; *provided, always*, that

the said name shall be restored on payment of fifty dollars to the Secretary of the Board within one year. The Secretary shall give receipts for all moneys received by him; and pay said moneys to the Treasurer of the California Pharmaceutical Society, taking his receipt therefor. The salary of the Board of Pharmacy, and of the Secretary, shall be fixed by the Board of Directors of the California Pharmaceutical Society, to be paid out of the registration fees and fines.

SECTION 6. From and after the first day of June, eighteen hundred and seventy-two, every registered pharmacist who shall knowingly, intentionally, and fraudulently adulterate or cause to be adulterated any drugs, chemicals, or medicinal preparation, shall be held guilty of a misdemeanor, and on conviction shall be fined fifty dollars in the first, one hundred dollars in the second, and on conviction in the third case his name shall be erased from the register.

SECTION 7. *And be it further enacted*, That on and after the first day of June, eighteen hundred and seventy-two, it shall be unlawful for any person in the city and county of San Francisco, to retail any poisons enumerated in Schedules A and B, appended to this act, without distinctly labelling the bottle, box, vessel, or paper, and wrapper or cover in which said poison is contained, with the name of the article, the word "Poison," and the name and place of business of the seller. Nor shall it be lawful for any person to sell or deliver any poison enumerated in Schedules A and B to any person, unless on due inquiry it is found that the person is aware of its poisonous character, and that it is to be used for a legitimate purpose. Nor shall it be lawful for any person to sell or deliver any poison included in Schedule A, without, before delivering to the buyer, making or causing to be made an entry in a book kept for that purpose only, stating the date of sale, the name and address of the purchaser, the name and quantity of the poison sold, the purpose for which it is stated by the purchaser to be required, and the name of the dispenser; said book to be always open for inspection by the proper authorities, and to be preserved for at least five years. The provisions of this section shall not apply to the dispensing of poisons (in not unusual doses or quantities) upon the prescriptions of practitioners of medicine.

SECTION 8. Be it provided that nothing contained in the foregoing section shall apply to or interfere with the business of any practitioner of medicine who does not keep open shop for the dispensing and retailing of medicines and poisons, nor with the business of wholesale dealers.

SECTION 9. Any person who shall attempt to procure registration for himself or for any other person under this Act by making or causing to be made any false representations, shall be deemed guilty of a misdemeanor, and shall upon conviction thereof be fined in a sum not exceeding five hundred dollars. Any registered pharmacist who shall permit the compounding and dispensing of prescriptions of medical practitioners in his store by persons not registered, except by junior assistants under the direct supervision of registered persons, or any person not registered who shall keep open shop for the retailing or dispensing of medicines and poisons, or who shall fraudulently represent himself to be registered, and any registered person who shall fail to comply with

the regulations of this act in regard to the retailing and dispensing of poisons, shall for every such offence be deemed guilty of a misdemeanor, and on conviction thereof be fined fifty dollars.

SECTION 10. All persons registered under this act shall be exempt and free from all jury duty in the city and county of San Francisco.

SECTION 11. All acts and parts of acts in conflict with the provisions of this act, in so far as they so conflict are hereby repealed.

SCHEDULE A.

Arsenic and its preparations, corrosive sublimate, white precipitate, red precipitate, biniodide of mercury, cyanide of potassium, hydrocyanic acid, strychnia, and all other poisonous vegetable alkaloids and their salts, essential oil of bitter almonds, opium and its preparations, except paregoric and other preparations of opium containing less than two grains to the ounce.

SCHEDULE B.

Aconite, belladonna, colchicum, conium, nux vomica, henbane, savin, ergot, cotton root, cantharides, digitalis, and their pharmaceutical preparations, croton oil, chloroform, chloral hydrate, sulphate of zinc, sugar of lead, mineral acids, carbolic acid, and oxalic acid.

NOTE.—The Secretary has not succeeded in obtaining a copy of the pharmaceutical law which, he has been informed, was recently passed in the State of South Carolina.

ON PHARMACEUTICAL LEGISLATION IN THE UNITED STATES.*

BY PAUL BALLUFF.

When, in 1869, at the meeting of this Association in Chicago, the resolution was passed to send to the authorities of the different States of the Union, copies of a draft of a proposed law, which the committee of the Association had prepared with so much ability and labor, and which embraced the principles on which a just and sound legislation for our profession should be based, it was hardly expected that this resolution would so soon be followed by practical and beneficent results. But unmistakably the laws enacted in several

* This paper was read at the Cleveland meeting, as a volunteer essay, but is published in connection with the report on Pharmaceutical Legislation, to which its subject appertains.—EDITOR.

States within the last three years owe their origin mainly to said resolution, by which the necessity of a lawful regulation of the practice of pharmacy was *quasi* forced on the attention of the State authorities and legislatures, and by which they got a firm handle to take hold of, and a rule to go by; which helped them to avoid the errors and mistakes they made in their earlier attempts at legislating for pharmacy, without consulting the pharmacist. Several States adopted not only the principles, but even to a great part the technical execution of the draft of the committee of 1869, to whom we owe still our thanks for their important and excellent labor.

The subject of pharmaceutical legislation seems at last to be in accordance with the spirit of the age in this country, that is to say, the necessity of having certain limits drawn to the practice of this branch of public hygiene seems to be felt among the people at large.

The "ball is in motion," and it is our duty to take care that it keeps rolling until law and order are reigning in our noble and responsible profession all over the country.

That at the present time such laws cannot practically be enacted for the whole extent of the larger States, but are yet to be localized to their larger cities or to smaller districts, is to be regretted, but can hardly be altered in consequence of the widely different state of pharmacy in larger cities from that in rural districts; for while in the former pharmacy has emancipated itself from its mother medicine, and has established itself as an independent and distinct profession, it still remains in the latter by necessity of circumstances quite primitively mixed up with medicine.

The fact being now generally acknowledged and firmly established, that for the sake of the welfare of the public, to which pharmacy has to contribute a large share, a certain lawful regulation of the practice of pharmacy is necessary, the question arises, to what extent shall legislation interfere with the practice of our profession in order to secure to the public the demanded protection?

To answer this important question we might but look to those old civilized countries of Europe, especially to Germany,

where for centuries back pharmacy and the pharmacist are controlled by the government, and we might adopt their mode of and follow their example in regulating the practice of pharmacy.

But there are evidently many rules prescribed by the laws of those countries which, although very well adapted to the circumstances and institutions of theirs, and although working admirably there, could hardly be applied in this republic, because not in harmony with its democratic principles and liberal institutions.

According to my conviction, there can in this free country and under the present circumstances hardly anything more be asked than, 1st, a good general and pharmaceutical education and high qualification *before* entering the practice of pharmacy; 2d, a strict accountability *in* practice, and 3d, the providing of means and opportunities for the proper education of pharmacists.

In regard to the latter the people might, in the interest of their own protection against incompetent and ignorant dispensers of medicines, through their governments, contribute to the establishing of good institutions, or support such as have been or will yet be established by the pharmacists themselves.

This, in my opinion, is all that is necessary and proper for the possible protection of the public.

Questions like the inspection of pharmacies, the limitation of their number to a certain proportion of inhabitants, the regulating of prices of medicines, &c., are entirely out of place at this present time, and as being contrary to the spirit of the free institutions of these free States, where personal liberty should not be tied by too severe laws, and where the intelligent and well-educated members of a community or profession should not be put under the harrowing tutelage of the government.

While then we strive to bring on a state of things in our profession which will be in keeping with its advanced position in other countries, we should be careful not to make the same mistakes that were made in those countries, especi-

ally in Germany, by which consequences and embarrassments were brought on, from which the pharmacists there try at the present moment to extricate themselves. For although German pharmacy shines forth as a model institution for all other countries, and although it cannot be denied that the stringent laws and the strict surveillance by the government there (which perhaps in no other case were so sure to bring on such beneficent results), secured to the public none but well-accomplished pharmacists, we must not overlook that on the other hand unavoidably many evil consequences arose from a system of such painful and revolting guardianship.

Privileges almost of the character of monopolies, infringements on personal liberty, a perfect suppression of free competition, partiality in granting concessions for establishing pharmacies, &c., turned that which was a bliss to the people finally into a curse for the pharmacists.

If we now look at the large number of intelligent, well-educated pharmacists of this country who have the liveliest interest in everything that tends to scientific progress and the improvement of pharmacy, and if we look at the flourishing pharmaceutical societies and colleges in this country, where till lately a perfect anarchy reigned in our profession, and where anybody, however ignorant and incompetent, could practice it without hindrance, we certainly cannot but be convinced that *within* the profession itself and among the real pharmacists there is a strong and noble impulse manifesting itself for progress and perfection in the right direction, and we may be confident that now when ignorance and incompetency will be banished from this profession by wise and rational laws, we will arrive at such results as will bear comparison with those highly praised ones in Europe. But, with the same zeal and in the same unselfish spirit in which colleges and societies have worked for the improvement and elevation of the profession *before* any legislative measures existed, should they unitedly and every pharmacist individually, leaning upon the laws which are now or will yet be enacted, be *active* in the interest of pharmacy.

The Boards of Pharmacy created by the laws enacted in

several States, and which are quite a novel idea, can only be useful in so far as they control the registration of qualified persons, and, if they are able, to keep non-qualified persons out of the profession.

Their examinations of persons who heretofore had a certain right to conduct the business of a pharmacist, and who had no previous scientific pharmaceutical education, cannot be of great particular value, and it is to be hoped that ere long the examinations by these boards will be only regarded as *preliminary* ones, qualifying a person either to enter as an *apprentice* into the profession, or to act as an *assistant pharmacist*, while for the establishing and conducting a pharmacy the diploma of a college should be required.

This subject of legislation for the practice of pharmacy came up again last winter before the Legislature of the State of New York. The law passed in 1871, which is known to you as the famous "Irving Drug Law," and which was denounced by the whole pharmaceutical press as a most obnoxious and unjust one, met with considerable opposition on the part of the educated and established pharmacists of the city. Many of those who hold legal diplomas from colleges and universities based their resistance to the law upon the fact that there is still a law on the statute-books of the State, which was enacted for the whole State, and consequently, also for the city of New York, according to which, only graduates of pharmacy or medicine were entitled to the practice of pharmacy.

They desired to have the matter brought before the higher courts by a test case, confident that any jury of the people would recognize their granted rights, and decide in their favor.

This, however, did not seem to meet the desire of the commission, and neither the district attorney nor the police authorities seemed inclined to interfere and to prosecute, probably because they were informed that an attempt would be made by the College of Pharmacy, and other pharmaceutical societies, to get the law repealed, and the commission upset.

A protective union consisting of pharmacists of all classes was formed. The executive committee of this union was charged with the drafting of another law; but the success in the Legislature of this draft seeming doubtful if not adopted and supported by the College of Pharmacy, the executive committee of the union impressed on the Board of Trustees of the College the necessity and duty of the College to rise against this unjust and most deficient law, and to bring forth and present to the Legislature a better and juster one for the regulation of our profession.

A special meeting was called, a committee appointed, who, with the committee of the union, and representatives of the German Pharmaceutical Society, formed a conference committee for the purpose of preparing a draft of such a law. After they had it finished, it was thoroughly discussed, altered, and amended at a special meeting of the College, and finally adopted by a large majority. A committee of three was appointed to bring it properly before the Legislature. It was believed that there would be no difficulty in getting this law passed, because it was presented by the College of Pharmacy, the only authority on pharmaceutical affairs in the State, and because introduced in the Senate by Senator Weismann, a highly respected member of the profession and the College of Pharmacy, and consequently a strong advocate of the law.

But the fact that there stood an established commission against it, with the pressure of a salary of $2500 a head, with the great name and authority of its presiding officer, and the columns of the *New York Herald* at its command through one of its members, caused immense difficulties and hard work to those who were delegated to care for the passage of the law; and only after a six months' regular campaign, after five hearings before the committee of the Legislature, and the cooperation of gentlemen of prominence in the medical profession and politics, the law was finally passed and approved.

Although the original draft could not be passed without being disfigured by some amendments, still the main points of it were carried, which suffice to attain the objects the Col-

lege had in view, in regard to the legal regulation of our profession, viz., New York pharmacy is removed from any outside, especially political influence, and the pharmacists can regulate their pharmaceutical affairs themselves within the limits of a reasonable law. The Board of Pharmacy is located in the College, and elected by its members. The qualification required for the practice of pharmacy is equal to that of other States and countries; the pharmacists are made responsible for the quality of the medicines they dispense; the sale of poisons is properly regulated; and last, but not least, the presumptuous and dangerous commission is removed, and the honor of the College of Pharmacy and the pharmaceutical profession in New York is redeemed.

The law has its defects in consequence of two amendments put in it; one forbidding apprentices to put up prescriptions, even under the supervision of competent pharmacists, the other requiring three medical graduates against two pharmaceutical ones in the board, which in time will be tried to be amended again. That it is only a local law, we hope it will not prove one of its weaknesses.

We did not feel justified to include the pharmacists of Brooklyn, and other cities or counties, without their consent, believing that they may deem it in their own interest to apply to the Legislature for extending the law over their districts too, after they have proof that it works successfully in New York, and is not only a protection to the public, but also to the pharmacists, in making impostors and lawless intruders feel its severity, and keeping them out of the profession.

The Board of Pharmacy entered upon its duties on the 25th of June; has since that time registered over seven hundred, and examined ninety-four pharmacists, proprietors and assistants. The examinations of those who had been in business for a number of years before the passage of the law, and most of whom had no scientific education, were of course of a practical character, and a low and uniform standard, as it cannot be the object to find out how high a person stands above the level of a competent practical pharmacist, but to

ascertain whether he possesses that moderate amount of knowledge and experience in pharmacy which enables him to compound physicians' prescriptions and the officinal pharmaceutical preparations without danger to his customers.

The examination of those who want to enter the profession now will be more stringent, and by degrees they will become nearly equivalent to those required for graduation in colleges, or rather of such a standard that every aspirant for pharmacy will find it necessary to pass through a college, and graduate there.

The College has since the passage of the law, considerably increased in the number of members, and so has the number of students for the next session, compared with those of preceding ones. The law and the Board created by it are popular, and enjoy the general favor of the pharmacists.

The medical profession fully approves of the new law, and wishes it sustained and enforced. Public opinion, which had been blinded and misled by the newspapers' puffs and self-laudations of the late commission, has entirely turned around in favor of the law, in consequence of the fact that all the educated and respectable pharmacists, through the College and the other societies, had joined their efforts to get it established for the simultaneous protection of themselves and the public.

REPORT OF THE COMMITTEE ON EXHIBITION.

CLEVELAND, O., Sept. 6, 1872.

Your committee have the honor to report on the Exhibition as follows:

CRUDE DRUGS.

Prof. John M. Maisch, of Philadelphia, exhibits a collection of Chinese blistering bugs, Mylabris cichorii, Fabr., and Milabris phallerata, Pall., as well as cantharidin, from the above. These specimens were illustrative of an interesting paper read before the Association by Professor Maisch.

Benton, Myers & Canfield, Cleveland, O. Specimens of crude

brimstone, discovered in Utah, 175 miles south of Salt Lake City. The mine is said to contain 32 acres of surface, and an inexhaustible depth. An assay shows a percentage of from 90 to 99 per cent. of pure sulphur.

Louis J. Merkel, of Cleveland, Ohio, exhibits a green specimen of the peanut plant (Arachis hypogæa).

McKesson & Robbins, New York. A very beautiful and valuable collection of over sixty varieties of medicinal seeds, selected Chinese rhubarb, and German medicinal herbs.

Lazell, Marsh & Gardiner, New York. Varieties of rhubarb. Fine specimens of ipecac and jalap.

Powers & Weightman, Philadelphia. An interesting collection of cinchona barks.

Strong & Armstrong, Cleveland, O. A very choice and well-selected lot of crude drugs, prominent among which are excellent specimens of flake manna, true cinnamon, ammoniac, cassia bark, nutmegs, and gum tragacanth.

H. F. Reum, of Cincinnati, O. Specimens of true Russian rhubarb, not now in commerce; and of such of the present Russian trade. These samples were obtained through the German envoy at the Court of St. Petersburg.

B. O. & G. C. Wilson, Boston, Mass. A very superior collection of pressed and loose medicinal herbs, flowers, and roots, very clean, free from extraneous matters, and carefully preserved, retaining smell and aroma to a very satisfactory degree.

Cheney, Myrick, Hobbs & Co., Boston, Mass. A large display of American drugs, embracing a full collection of medicinal plants, of excellent appearance, and conveniently put up in large and small squares.

Dr. E. R. Squibb, of Brooklyn, N. Y. Specimens of Chinese rhubarb, in original packages; also varieties of aloes. These drugs were used and exhibited by the Professor in illustrating interesting papers read by him before the Association.

J. Milhau's Sons, New York. Samples of natural mineral waters.

ESSENTIAL OIL AND POWDERED DRUGS.

These were exhibited in variety by

Charles T. White & Co., New York.
McKesson & Robbins, New York.
Lazell, Marsh & Gardiner, New York.
Hance Brothers & White, Philadelphia, Pa.
Powers & Weightman, Philadelphia, Pa.
Strong & Armstrong, Cleveland, O.
Parke, Davis & Co., Detroit.

CHEMICALS.

Charles T. White & Co., New York. A very large collection, embracing 82 varieties; sulph. morphia; very pretty crystals of strychnia, representing nearly three tons of nux vomica; sulph. quinia (a new feature with this house); ponderous calcined magnesia, &c.

Lazell, Marsh & Gardiner, New York. A very creditable general collection.

Powers & Weightman, Philadelphia. This house presented the largest collection of chemicals. The well-earned reputation of the firm with the pharmaceutical profession of the country was fully sustained by the character and variety of their display.

J. Milhau's Sons, New York, exhibit a number of new and rare chemicals of foreign manufacture.

Parke, Davis & Co., Detroit. Samples of chloroform, ammonia, and spirits nitre.

APPARATUS, FURNITURE, AND APPLIANCES.

H. C. Gaylord, of Cleveland, O. Suppository moulds of improved construction, their application illustrated by a variety of specimens made with them.

McKesson & Robbins, New York. Filtering racks, constructed of wire, and of movable partitions.

Hance Bros. & White, Philadelphia. Improved drug mill, filtering apparatus, &c.

James R. Mercein, Jersey City, exhibits Bushby's pill machine (English). As far as your committee have been enabled to judge, the machine is very serviceable for manufacturing pills in large quantities.

Joseph Harrop, Leavenworth, Kansas. An herb-press, its use illustrated by essay and by specimens of herbs pressed with it.

David Heston, Bristol, Pa. A well and tastefully executed lot of specimen labels, in sheets and cut and gummed.

Whitall, Tatum & Co., Philadelphia, Pa. A large collection of glass ware, improved prescription-vials, &c. Also various sizes of bottles roughened as distinctive for holding poisons.

Jeremiah Quinlan, New York. A full array of shop furniture, show-jars, glass labels, displacement apparatus; all of very elegant and modern finish.

F. X. Crawley, St. Louis, Mo. A chart of the metric system of weights and measures, by diagrams and tables, very serviceable for laboratory use.

W. H. Pile, Philadelphia, Pa. A very complete assortment of graduated tubes, chemical thermometers, alcoholometers, hydrometers, specific gravity bottles, and aluminium weights. These instruments are well and accurately made. Dr. Pile also exhibits Otto's acetometer, made by himself, and McAllister's students' microscope.

PHARMACEUTICALS.

Fluid extracts, sugar-coated pills, syrups, and unofficinal elixirs, are exhibited by the following manufacturers:

Wm. R. Warner & Co., Philadelphia, Pa.
Hance Bros. & White, Philadelphia, Pa.
Bullock & Crenshaw, Philadelphia, Pa.
Mellor & Rittenhouse, Philadelphia, Pa.
Charles T. White & Co., New York.
McKesson & Robbins, New York.
Lazell, Marsh & Gardiner, New York.
Parke, Davis & Co., Detroit.
George H. Schafer & Co., Fort Madison, Iowa.

The time allowed your committee for report is so limited, that a critical examination of this class of preparations could not be made. The articles are neatly put up, and their exhibition very commendable, if intended to emulate and encourage pharmacists in making this class of remedies in concentrated and palatable forms.

MISCELLANEOUS.

Waters & Ricksecker, New York. A neat lot of fancy goods, druggists' sundries, and concentrated perfumes.

Burbank & Gallagher, of Washington, North Carolina, exhibit still and sparkling Scuppernong wines, retaining the peculiar aroma and bouquet of the native grape. Also a Scuppernong brandy.

Benton, Myers & Canfield, Cleveland, O. 12 varieties of native wines and cordials.

Good & Roof, New York. A collection of California wines and brandies, of good taste and apparent purity.

Your committee close this report with an expression of hope that at future exhibitions more special prominence may be given to the exhibition of pharmaceutical and chemical apparatus, crude drugs, and chemical and such pharmaceuticals (from manufacturing establishments) which dispensing pharmacists are not required or expected to make by the Pharmacopœia.

Very respectfully,

H. J. MENNINGER, Chairman,
E. SCHEFFER,
WILLIAM MCINTYRE,
C. HOHLY,
M. L. M. PEIXOTTO,
Committee.

SPECIAL AND VOLUNTEER REPORTS AND ESSAYS.

I. PHARMACY.

THE PRELIMINARY EDUCATION OF APPRENTICES.

BY PROF. EDWARD PARRISH.

QUERY 55.—What are the preliminary educational requirements best adapted to youths expecting to enter stores, for the purpose of qualifying themselves for the business of druggists and pharmacists, and what preliminary examination, if any, should be required by the Colleges of Pharmacy?

EVERY young man should have a good English education as that term is understood in our common schools, no matter what his pursuits are to be. If he is to be a mechanic, engaged in building houses, or making shoes, and habitually wearied by manual labor, so as to lose the ability or inclination for pursuing literary culture, he should at least start with a well-furnished mind, so that he may be partially redeemed from the ignorance which results from the absence of profitable reading and conversation. If he is to practice some profession which throws him into frequent intercourse with educated men, he needs to start with a good school education, or he will be at a disadvantage all his life in competing with his associates and compeers.

The education in our common schools is divisible into five branches: 1. A knowledge of the structure and the uses of the English language; 2. A practical acquaintance with numbers and forms, and their relations to each other, mathemat-

ics; 3. Manual education, writing and drawing; 4. Geographical and historical knowledge, to qualify the student for the duties of citizenship, and to give him an intelligent idea of the human race in its distribution; 5. The leading facts and principles of the sciences of physics and chemistry.

Much as we deplore the crowding of these studies and the consequent want of thoroughness in the education of the youth, no one wants to omit a single one of them, nay, we all feel how deficient they are in scope, how ignorant our boys are when they leave school, of much knowledge that is of real worth and importance, and which they will never after acquire.

This remark applies with special force to the scientific branches, as they are called. The chemistry taught in the common schools—it is only reached by the more advanced classes—is indeed so very meagre that it seems a great leap from it into the laboratory, and yet it would be safe to say that thousands of boys have imbibed from their text-books, charts, and school-room experiments, that taste for science which has led them with success into its most occult and difficult pursuits, and to form this taste is perhaps all that could be expected of a course of common school education.

What most strikes us as wanting in the programme of common schools, is natural history, a knowledge of minerals, plants, animals; hard to impart to those who cannot leave the cities, but easy to every boy of fair abilities, who, with suitable guidance, can follow the natural impulse of boy life among the hills, and forests, and streams. What we all missed from lack of this kind of instruction when young, to quicken our senses and give precision and sharpness to our observation of things around us, we can only now estimate by comparing our vague and detached knowledge of the world we live in, with that accuracy of detail and large scope which many minds early devoted to its study have attained.

In looking at the best preliminary training for the pharmacist, I should say, by all means teach the boy to know the stones that he turns up in his travels or picks up out of the débris of the quarries, teach him the forms and characters of all the wayside weeds; let him collect and study the bones

that lie bleaching on the fields, then when he comes into a drug store he will not be satisfied to handle sulphur, cinchona, and cantharis, without knowing more about them than their names, effects, and doses.

Should then the boy who is ambitious to earn his living by the semi-scientific ways and processes of pharmacy be diverted from his spelling, grammar, geography, and history, and put to botany, zoology, and chemistry? I think not.

Educators are apt to deprecate the early diversion of a young man's training into a professional channel. He should, they say, be educated on all sides alike. Many urge that the bent or drift of his mind when discovered should indicate to his teachers to educate him in the opposite direction; he will easily acquire what his inclination points to, and should be compelled, for the sake of completeness, to learn what is distasteful to him. The effort this will cost him, say they, will develop him and teach him the lesson of perseverance and self-denial.

It is to fit boys for business that we send them to school, or to make them intelligent, competent men, prepared to seize on the work of their day—to mingle in the social, political, and religious associations which fill in the framework of society. It is true that to pursue business for a livelihood is the destiny of the vast majority, and it can scarcely be said of any part of a young man's training at school that it has no relation to preparing him for business, yet it is very important, in considering the general scope of education, that this should be kept in its proper and subordinate place.

Should a boy designed for the profession of pharmacy, as we call it, have a college education or not? Of course but few can have, as things are. The nature of our business is such that it does not attract those who have the means to prepare themselves for the more lucrative and distinguished professions.

We draw our recruits mainly from that great middle class who are too limited in their means to endow their children with that priceless boon, a liberal education. Necessity knows no

law, and our apprentice boy must be at work for his bread at seventeen or eighteen years of age, perhaps much younger.

Besides the colleges of pharmacy, practically say to the parents, if you want to make your son a pharmacist, you must take him from school at seventeen. He can only legitimately enter our profession through a four years' apprenticeship in a store, where if he pick up scientific knowledge at all, it must be in the interim of the toilsome details of business. Despite all this, do we not all feel that a pharmacist certainly ought to have a liberal education if he can afford it? Is it not also plain, that pharmacy never will take rank with the medical profession till it has within its ranks a considerable proportion of well-educated, cultured men?

It is just where the common school branches into the college that special training in the sciences tributary to pharmacy become practicable.

In nearly all colleges, the classical studies which formerly were the staple of education may be substituted wholly or in part by modern languages, and the physical and natural sciences. In fact, there are now numerous colleges in which a large part of the time is given to physics, chemistry, geology, mineralogy, comparative anatomy, and botany.

A youth who could spend a year or two in college at these studies before entering on his business education, would come forth beyond comparison superior to the average candidates for the pharmaceutical profession.

There are few pharmaceutical teachers in this country of larger experience than myself, and I have had unusual opportunities of comparing students of medicine, many of whom have had the advantages of a college course, with students of pharmacy, whose preliminary education, as a rule, has been cut short, and the result of a review of the whole subject, in my mind, is that what is most needed in pharmacy is a higher grade of preliminary education; what our young men acquire is picked up with so little method, that it lies loosely distributed in their minds.

They lack the clue of science to bring it all under the sway of the memory and reasoning powers, and though they may

make reliable practical pharmacists, very few of them will ever be able to contribute much to the general advancement of science.

On the contrary, look at Germany; she has been for generations building up a complete system of learning for all the people, a system which, while it lays broad and deep the foundations of general culture, directs industry into the channels of science, fosters the arts and handicrafts, and for the reason she stands foremost among the industrial nations. The German apotheker may be deficient in expressing himself in English, and may not know all that is to be learned in fancy pharmacy, but what he knows he knows well, and understands it, and this I take to be the true test of acquirements,—thoroughness. Look now, if you please, at the flood of new facts which the German journals are constantly pouring into the literature of pharmacy, taxing all our industry and acumen to keep pace with the rapid progress of discovery. Has it not its origin in the preliminary education of the masses who fill up the ranks of our profession?

The study of language, formerly carried so far in the college at the expense of what may be considered more useful learning, has received such hard knocks of late, that it is difficult in the circles of physical science to secure for it its due. Yet who that knows two or three languages besides his mother tongue, would exchange that knowledge for any gain, even in the direction of other scientific acquirement?

Our transatlantic colleagues in England require a knowledge of Latin grammar as a preliminary to their instruction in pharmacy, and with much reason, since the whole terminology of medicine and pharmacy is involved in it, and yet, in this country, a young man from the middle walks of life, who earns his living as a dealer in medicines and poisons, rarely knows why acacia is written acaciæ, or opium opii, in prescriptions, or why fiat pulvis designates one powder, and fiant pulveres, two or more.

To avoid extending this paper beyond the requirements of the occasion, it is time to sum up the drift of these remarks,

and to endeavor to answer more directly the question propounded by the Association.

The preliminary educational requirements which most commend themselves to youths expecting to enter our stores, are those which the common schools supply, supplemented by systematic instruction in natural and physical science where attainable, and by the elements of Latin and Greek, and one or more of the modern languages of Europe, and where any of these studies are not attainable in advance of entering a store, they should be systematically pursued during the term of apprenticeship.

That the colleges of pharmacy, seeing the deficiencies in preliminary education, should require a standard of attainments in advance of entering upon their scientific and practical course of instruction, seems reasonable, and yet, when we consider how small a proportion of the whole number of those entering the business have availed themselves of the advantages of these institutions, it requires care how we cumber the colleges, some of them yet in their infancy, with impediments to their widening, rather than contracting the field of their labors. Of the 14,000 stores where medicines are sold in the United States, probably not yet one-tenth have a graduate in pharmacy behind their counters; the whole number of those who have graduated in this country at all, probably does not exceed—* Of those, many have died, some have retired from business, so that the large majority of persons now engaged in pharmaceutical pursuits have not been scientifically instructed. Let our colleges then be kept open to all, let their instructions be popularized and made as comprehensive as possible, and while we seek gradually to raise the standard of graduation, let us not choke the entrance to the schools by restrictions calculated to exclude those who most need their instructions.

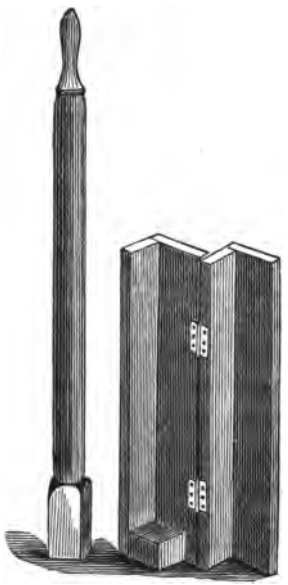
---

* The sudden death of Professor Parrish prevented him from filling this blank. The Philadelphia College of Pharmacy has had 876 graduates up to the present time; the number of graduates from all other colleges of pharmacy in the United States is probably smaller, but we have no reliable information on this point.—EDITOR.

ON AN HERB PRESS.

BY JOSEPH HARROP, OF LEAVENWORTH, KANSAS.

In a paper which we presented to this Association at its last meeting on the preservation of herbs, there were several methods referred to, which were calculated to secure their freshness and strength. The pressing of herbs, flowers, &c., were objected to at that time for several reasons, which may or may not have been entirely, or in part, correct. The facts are, that pressed herbs are put up and sold almost to the entire exclusion of herbs in the loose or unpressed state. In order to show the practical workings of the press, to which this paper refers, we here exhibit some samples of herbs which have been pressed in one, two, and four-ounce packages. There *is* a grave objection to pressing herbs, &c., and putting into packages, viz., the destroying of their identity. Of course this is owing to the fact that they are *too firmly* pressed, but not a necessary result of pressing. In the samples before the meeting, it will be seen that the identity of the herb or leaf is scarcely impaired. By simply moistening, they may be brought almost to their natural shape again, and examined if necessary. We will not deny that this paper, and the press accompanying, were presented to strengthen the views taken in our article of last year. It may be considered a continuation of the same. The working of the herb press which we here present, needs no explaining from us. It will speak for itself, and we may be pardoned if we say that it is by these simple appliances, rather than by complicated machinery, which premise big name and big money, that the progress of pharmacy is to be secured.



September 1st, 1872.

ON A SERVICEABLE DRUG MILL.

BY THOMAS J. COVELL, G.PH.

QUERY 19.—Which of the several hand Drug Mills is best adapted to the wants of the pharmacist?

AFTER an extended use of four of the hand drug mills known to the writer, it is found that Hance's Conical Plate Drug and Spice Mill, which is not patented, is best adapted to the wants of the pharmacist, an illustrated description of which follows.

Figure 1 represents the mill connected with a column, for the purpose of bolting to the floor. This is fitted with a balance-wheel 30 inches in diameter, and surrounded by a heavy rim; in other respects it is similar to Figure 2. This is intended for bolting to a table or counter, and has a balance-wheel of 22 inches diameter, which is suitable for most purposes. Each mill is accompanied with a wrench for the different bolts and set screws, for securing it to its position and regulating the fineness of the ground drug.

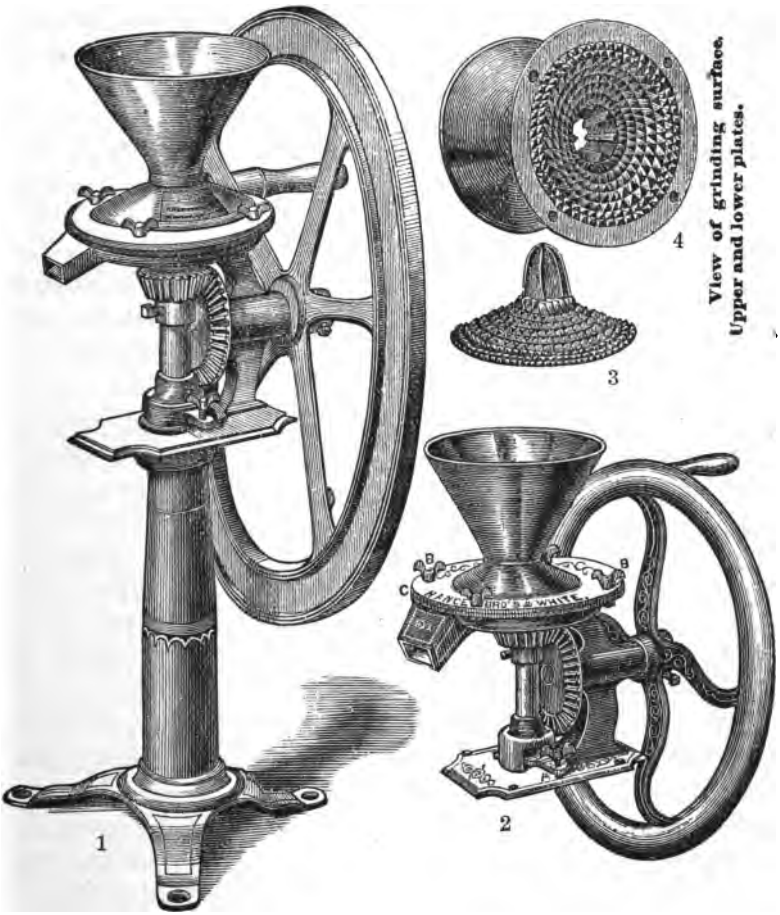
Description.—The frame of the mill consists of one casting, being made of such strength, at the points exposed to a strain, as to be able to bear rough usage. In this casting is the discharge spout, and the bearings for the upright and horizontal shafts, which engage each other by means of bevel wheels, geared to increase speed; the upright shaft rests upon a plate, which is raised or lowered by means of a thumb-screw A, thereby regulating the fineness of grinding. The horizontal shaft has a bearing its entire length, except about two inches at one end, which receives the balance or driving-wheel, and one inch at the opposite end, which carries the larger bevel cogwheel.

Figure 3 shows the lower grinding plate and breaker combined, which fits upon the upper end of the upright shaft, revolving with it, and engaging with the teeth shown in Figure 4, which is the upper grinding plate and hopper, cast in one piece, which is secured to the frame of the mill by bolts, B, B, B, B.

In using the mill, it is important that it is firmly bolted to

a firm foundation; the one used by the writer is bolted upon a table, having a top two inches thick. Keep the working parts cleaned and oiled. It is necessary, in order to secure a

HANCE'S
CONICAL PLATE DRUG AND SPICE MILL



fine powder, that the drug employed be perfectly dry and in pieces not larger than walnuts; the labor of grinding will be less, and by sifting each time it passes through and returning

the coarser parts, gradually setting the plates closer, until the desired fineness of the drug is obtained; large roots, like jalap and rhubarb, require to be cut small before they will feed. The friction of the grinding plates makes the mill unsuitable for grinding rosin and flaxseed, except in very cold weather. While the makers, Messrs. Hance Brothers & White, of Philadelphia, Pa., do not claim it to meet every requirement, the writer believes it covers a larger field of usefulness for druggists' and pharmacists' use, than any other hand drug mill known.

(BERGEN) JERSEY CITY, N. J.,
Sept. 2d, 1872.

NOTE ON A NEW FORM OF PERCOLATOR FOR FLUID EXTRACTS, TINCTURES, ETC.

BY EDWARD R. SQUIBB, M.D.

THE accompanying centre-section drawing of a new form of percolator for fluid extracts, tinctures, &c., is presented to the Association on behalf of the writer's son, Edward H. Squibb, who has prepared it in every detail with care and skill. The drawing is upon the scale of half the linear size required for sixteen troy ounces of substance, and if accepted and deemed worthy of publication in the Proceedings, the scale should be again reduced one-half, so that it may appear in the volume of one-quarter the linear size required for general use. The drawing exhibits the detail of arrangement, but cannot of course show the working management, and therefore two of the percolators are brought before the Association herewith,—one in actual operation upon columbo, and the other empty, so as to show all the parts. These will be placed in the exhibition-room for a closer examination by any who may be interested in them.

The writer has used this form of percolator for about two years, and is confirmed in regard to its practical utility and efficiency. It is a simple and rather ornamental piece of apparatus, and not inappropriate to a conspicuous position in the

establishment of the practical pharmacist. The chief merits claimed for it are that it embraces maceration with percolation to any extent that may be desired, and enables the operator to vary the amount of maceration easily during the process; that it controls the rate of percolation perfectly and easily, and renders the percolation, as nearly as practicable, uniform throughout the mass of substance, independent of the packing; it therefore requires less skill and experience in packing to obtain a given success in result; that it is economic on material, and as nearly automatic and self-controlling as a piece of apparatus can well be, and therefore requires the least time and attention; that it is well adapted to repercolation, upon the necessities of which it grew, and well adapted to controlling the results; and finally that it successfully exhausts substances in coarse powder better than the usual forms, and is thus better adapted to the use of those pharmacists who do, as all pharmacists should, make their own powders.

These claimed advantages accrue from a single simple point or principle in the design of this percolator, namely, the maintaining of all the particles of the substance as nearly as practicable under the same pressure of surrounding liquids, as in maceration, and in so using the gravitation of the liquid in the mass that by its infinitely slow descent it is under the best practicable condition for passing *through* the porous particles rather than *around* them.

To illustrate this important point, so essential to all forms of percolation, imagine a mass of perfectly porous marbles which have been saturated with a dense solution of sugar, and so dried as to deprive them of all but hygrometric moisture. The problem is to get this sugar out of the interstices of the insoluble marbles. If these marbles be put into a funnel, and have water poured upon them, well-known physical laws will easily enable the operator to predict and explain the result. A small proportion of the water will gradually be absorbed into the pores of the marbles to take the place of that driven out by the drying, and this will more or less completely redissolve the sugar, and refill the pores with a dense solution of sugar. These pores are in the form of small irregular chambers

with rough sides, communicating with each other in every conceivable direction through the mass by openings of various sizes and forms. The cohesion between the dense liquid and the sides of the cells and openings is so great as to counterbalance the force of gravitation, and these conditions being undisturbed the cells would remain thus filled indefinitely. Other portions of the water, which is continuously poured on, are deflected by the upper surfaces of the marbles, and are directed by these surfaces into a very tortuous course until they escape from the funnel below; but every particle of this water has had a strong tendency to pass in a straight line from the point where it struck the first marble to the outlet of the funnel below. It therefore penetrates the porous surface of the marble in the direction of this straight line to a distance which is controlled by the amount of its initial or falling force and the resistance and solubility of the surface and the syrup. This force is then divided, one portion being retained by the deflected particle in its interrupted course, and the remainder being distributed to the particles of syrup in the interior of the marble. This force from without destroys the counterbalance between cohesion and gravitation, by giving the balance of power to gravitation, and a downward current is established within the marble. This current is, by density of the moving matter, by friction, and by the length and area of the channels, rendered indefinitely slow, and can only be hurried within the extremely limited compass involved in the keeping of a line of particles behind. All farther supply of water is in excess, and after the surfaces of the marbles are washed free from sugar, and are saturated with particles of water in slow motion, this excess merely serves to dilute the syrup and wash it away as it is slowly pushed through. Thus a copious supply of water would in time wash the marbles free from sugar, but the sugar would be in a very dilute solution.

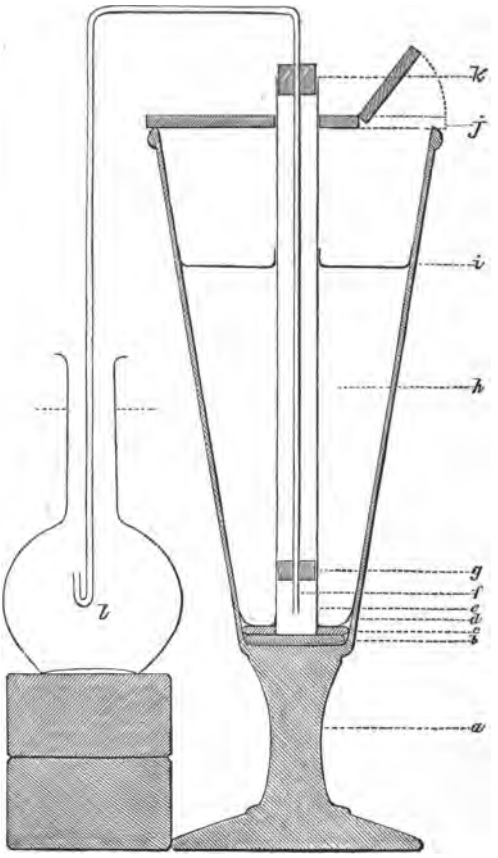
If, however, the sugar be required in dense or concentrated solution, the excess of water which simply flows between the marbles must be avoided. The outlet of the funnel must be stopped, and only water enough poured on to keep the upper

layer of marbles always covered. The sugar will then soon be all in more or less dense solution, the water between the marbles sharing with the marbles the portion of sugar which was on or near the surface. If now the outlet of the funnel be opened so as to allow the liquid to flow out only at the rate of one drop each minute, for example, the laws of hydrostatics require that this rate shall be supplied from every atom of the total contents of the funnel, and hence the movement or current established in all parts of the funnel must be very slow, and by this diminished velocity must be proportionately relieved from friction and increased in power; or in other words, the currents between the marbles are retarded approximately to the same rate as the currents within the marbles, and hence the superincumbent vertical files or lines of particles of liquid are not deflected from the surfaces of the marbles, but pass through the marbles in the straight lines required by the laws of gravitation, becoming more and more highly charged with the sugar until they escape below comparatively undiluted.

In this attempted elucidation of the principles involved in percolation and exhaustion, many disturbing influences and forces are kept out of view, and no accuracy in regard to direction of forces and resistances is attempted, not only because they are not well enough understood by the writer to be properly expressed, but also because they would so complicate the process as to confuse the illustration.

The deduction intended to be drawn from this illustration in its application to the process of percolation is that a funnel, with a stratum of menstruum always covering the surface of the substance, and an outlet so regulated as to maintain a uniform tension of liquid throughout the entire mass of substance, would be *the* perfect percolator. From variation in the fineness of powders, in the solubility of the portion to be extracted, in the character of the menstruum, &c., it is practically impossible to maintain a uniform tension of liquid throughout the mass by any arbitrarily adopted rate of flow from the lower opening of the funnel, and the chief advantage claimed for this new form of percolator is that this uni-

form tension of liquid can be obtained and maintained by the higher or lower position of the syphon, and that the rate of flow will be spontaneous, and need no other control than the position of the syphon. Not that theoretically perfect results can be attained or even closely approached by this apparatus, but simply that it is perhaps a real and not unimportant advance upon the simple funnel percolator.



The percolator, *a*, is of the form of the more modern glass and tin percolators, somewhat funnel-shaped to allow substances to swell without becoming impacted, but having no particular angle, but with no outlet at the bottom, the deliv-

ery tube being converted into a solid stem, and this terminating in an ordinary circular foot upon which the percolator is supported. It is made of glass, and in general form and appearance resembles an ordinary celery-glass for the table. The total height is 15½ to 16 inches, or about 40 centimetres, of which about 4 inches or 10 centimetres is foot and stem. The interior dimensions, to accommodate conveniently an officinal portion of 16 troy ounces of any powder, however light, and a good portion of menstruum above it, is 11½ inches or 26 centimetres deep, 5½ inches or 14 centimetres across the top, and 2 inches or 5 centimetres across the bottom, which should be flat, as shown in the drawing, and not cup-shaped, as the glassblowers are apt to leave it. A rim of glass is made upon the upper edge or lip to thicken it, and this lip is ground off so that the cover may fit accurately to prevent loss by evaporation. The height of the foot and stem is not a matter of indifference, because if too short the receiving flask or bottle cannot be so conveniently changed during the process.

A disk of flannel or blanket, *b*, is cut so as to lie flat upon the bottom, which it entirely covers.

Another disk of the same material, but a little larger, *c*, is made with a crucial incision in the centre, so that it may be stretched over the end of the well-tube.

The central or well-tube, *e*, is a simple piece of glass tube about 12 inches or 30 centimetres long by ½ to ¾ of an inch or 1½ to 2 centimetres internal diameter. Over one end of this well-tube the upper disk of blanket is stretched, the end being pushed through the crucial cut so that the disk fits tightly on the tube, the four corners made by the crucial cut being reflected up against the sides of the tube. The disk is then slipped up to the other end of the well-tube, and is tied firmly on to the tube by small twine or thread wrapped around the corners of the disk where they are reflected up against the tube.

A disk of filtering-paper, *d*, larger than the blanket, with a crucial cut in the centre, is cut in toward the centre around the edge so as to lie flat against the sides of the percolator where reflected up against them. This disk of paper is pushed down upon the upper blanket.

If now a piece of paper be twisted around the upper end of the well-tube, or a cork be temporarily stuck into it, the percolator is ready to receive its charge, which is packed in around the well-tube and upon the disks of paper and blanket so as to occupy the lower part of the body of the percolator, *h*.

When the charge, having been properly moistened, rubbed, and sifted, is packed in around the well-tube, its surface is covered by a disk of muslin, *i*, of proper size, and this is held in place conveniently by some fragments of broken glass thrown in upon it. The percolator is then ready to receive the menstruum or weak percolate, and enough of this should be poured on at once to fully saturate the entire substance. The liquid then passes down like a piston, forcing the interstitial air out through the blankets into the well-tube, whence it escapes freely.

A snugly-fitting cover, *j*, is the next requisite, to prevent unnecessary loss by evaporation. This is very conveniently made from sheet rubber, $\frac{1}{4}$ to $\frac{3}{8}$ inch or $\frac{1}{2}$ to 1 centimetre in thickness. This sheet rubber is sold by all the rubber companies of any desired thickness, and is by them cut to order into disks of any desired size. A disk 7 inches or 18 centimetres in diameter has a hole cut in its centre by means of a wet cork borer, of such a size as to slip easily over the upper end of the well-tube. As it is troublesome to raise this cover every time the percolator is to be supplied with liquid, it may be, by means of a sharp knife, kept wet and directed by a ruler, cut nearly through, so that the uncut part of the thickness serves at once as a hinge and a spring, and permits a part, say one-third, of the cover to be raised without raising the remainder, as shown in the drawing.

The percolator is now charged and in readiness to start the percolation. The menstruum will have passed down through the whole of the substance and will have arisen in the well-tube to nearly the same level as that of the liquid on top, and the entire mass will be saturated and in maceration; and the whole arrangement will represent a well dug in a soil of the wet substance. Now, to pump out that well at a rate no faster, but just as fast, as the saturated liquid passes into it

through the porous strata at the bottom, is the final step of the process.

This is most conveniently done by a syphon, *f*, which can be easily raised or lowered through the whole depth of the well. This syphon is made of glass tubing of about $\frac{1}{8}$ inch or 3 millimetres bore, bent twice at right angles, the two legs about $12\frac{1}{2}$ inches or 31 centimetres long, and $4\frac{1}{2}$ inches or 11 centimetres apart. The outer leg is a little longer than the inner one, and turned up upon itself for about $\frac{3}{4}$ inch or 2 centimetres, as shown in the drawing. The legs should have only such a difference in length that the inner one should reach the bottom of the well when required, and when measured upon the outer one should reach to about half the length of the short turned-up portion. This arrangement prevents the entrance of air into the syphon, and thus prevents it from emptying itself, for when the liquid is drawn over by the syphon until the surface falls to the level of the turned-up point at the outer end, the columns of liquid will be of equal length and will counterbalance each other, and the flow will cease. But as soon as the outer level is raised by the addition of fresh liquid the flow will recommence at a rate proportionate to the difference of level. It is this automatic and constant self-regulating action of the syphon that enables the design of this percolator to be carried out in practice, and the facility with which the syphon is raised or lowered in the well gives the operator perfect control over the process.

One or more short pieces of concentric india-rubber tubing, *g*, stretched tightly upon the inner end of the syphon, but fitting loosely in the well-tube, serve to guide the lower end of the syphon and keep it near the centre of the well-tube.

Other short pieces of rubber tubing of different sizes, one over the other, so as to form a soft stopper for the upper end of the well-tube, as shown at *k*, completes the guide by which the syphon is kept in proper position. The inner piece of tubing composing this stopper should be large enough to move freely and easily upon the syphon, while the outer piece should fit the well-tube snugly. Then when the syphon is raised to the desired position and this stopper pressed into the well-tube

lightly, it pinches the syphon lightly, but sufficiently to hold it in the desired position and to enable the operator to change the position at will without deranging the apparatus.

A receiving flask or bottle, *l*, marked in the neck or at some convenient place to the measure of a pint, and some wooden blocks to support this receiver at various heights, completes the apparatus. When the mouth of the receiver is left upon the same level as the liquid in the percolator, of course the receiver can never run over, and this is the position to which the receiver should be blocked up when left for the night or for a longer time. The liquid will then accumulate in the receiver more and more slowly, immersing the end of the syphon, until the level approaches or reaches that of the liquid in the percolator, and will then remain at rest, but in readiness to start at any moment when the levels may be disturbed either by a fresh supply of liquid to the percolator or by lowering the receiver.

In order to save space at the top of the drawing, the syphon is represented at nearly its lowest position, a position rarely required except at the end of a percolation when the very last portions of liquid are to be drained off. The position of the syphon is to be regulated by the rate of flow, and the position regulates the rate of flow. Therefore this rate must be arbitrarily adopted in view of the fact that the slower the rate the more effective is the percolation. The rate, upon this scale, should never exceed twenty to thirty drops per minute, or two to four fluid ounces per hour.

When the percolation is ready to be started, that is, after the substance is fully saturated and a stratum of liquid lies above it unabsorbed, the liquid in the well will be found to have arisen nearly to the level of the liquid outside the well-tube. It never rises quite as high within, because this liquid is more dense than the outer liquid, and the column is therefore heavier.

The syphon is then introduced and fixed by the stopper in such a position that the inner end is immersed in the liquid of the well to the extent of two or three inches. The syphon is now ready to be started. The starting is perhaps best done

by means of a short piece of small rubber tubing on the end of a longer piece of glass tubing. The rubber tubing should fit snugly over the turned-up end of the syphon, and then by suction with the mouth through the glass tube the syphon is carefully filled from the well. Before slipping off the rubber end of the suction-tube from the end of the syphon, the receiver is to be put in place, so that the first drops from the syphon, as well as those which may have passed into the suction-tube, will fall into the receiver. The rate of flow may be very rapid for a few moments, but will soon diminish to uniformity as the levels become adjusted to the uniformity of the rate of flow. If this rate be more than twenty drops per minute the syphon is to be raised carefully, and a little at a time, so as not to expose the end above the liquid in the well, and thus allow the air to enter the syphon, until the required rate is attained. As the rate varies with the varying density of the percolate during the process the syphon is to be from time to time raised or lowered so as to restore it to the desired standard. When exhaustion is practically effected, the syphon is pushed down to the bottom of the well and all the liquid drained off. The exhausted substance may, by care, be then removed, and replaced by a fresh portion, without disturbing the well-tube or disks of blanket and paper, which is a considerable advantage in repercolation, where the same drug is used in successive portions.

The difference in drugs and their menstrua, and difference in the fineness of the powders used, requires a difference in the position of the syphon for every percolation in order to attain a uniform rate. In a few drugs in fine powder, and packed pretty firmly, the syphon requires to be kept down at the bottom of the well, particularly in repercolations when dense weak percolates are used on top, from the very first start, and even then the rate will often be far below the standard of twenty drops per minute. But such percolations are always very successful, and very economical except in the time required. When the powder is very coarse and the menstruum thin and light, the syphon is kept very high, as in the case of the percolator shown herewith, charged with columbo in

excessively coarse powder for illustration. A previously exhausted and dried charge of the same coarse powder is also shown, so that the completeness of the exhaustion may be judged by the taste. This portion was exhausted by five pints of diluted alcohol, and the two pints of percolate first received is now used upon the charge in the percolator.

BROOKLYN, August, 1872.

THE DISPENSING DEPARTMENT.

BY JOHN F. HANCOCK, BALTIMORE, MD.

QUERY 23.—What is the best arrangement for the dispensing counter, securing convenience in manipulation, and economy in space?

THIS query is of exceeding importance to the pharmacist, and we are constrained to express regret that it did not become the task of a more competent essayist, for a good subject, poorly treated, loses much of its interest.

At a first glance, the subject which we have under consideration seems simple and easy to answer, but an extended survey of the premises renders evident the fact that it must be viewed from several standpoints, and that no set of rules, however perfect, can be made to literally apply in every individual case. But in the establishment of a pharmacy, as in everything else, general principles are necessary.

In every branch of architecture, if excellence of design and finish are at all desired, we must first accept a model, actual or ideal. We understand a *model* to be a standard, or most perfect picture of something to be imitated.

It has been our good fortune occasionally to review pharmaceutical models as furnished by writers on pharmacy, and the illustrated catalogues of those engaged in the business of shop-fitting, and from this source we are glad to acknowledge many practical hints. But these have always been of a fragmentary nature, and no allusion will be made to them in this

instance, as it would be the means of unnecessarily prolonging our dissertation.

We propose to state as briefly and as lucidly as possible the plans of the writer, as indicated by observation and practical experience, and as partially demonstrated by a pharmacy known to him. It has been intimated already that the subject is a difficult one to treat in a satisfactory manner, and native vanity will not permit the hope that the ideas here expressed will meet with general approbation. The difficulties to be encountered are obvious, when we take into consideration the disparity of financial means, local requirements, position and space, and for these reasons, without taking into account the shades of individual fancy and taste, it becomes necessary to modify or extend every accepted model.

The first understanding of the query was to deal exclusively with the dispensing counter, but the question naturally arose: What is the dispensing counter? A pharmacy may have several counters, and each one will serve to some extent as a dispensing counter. With this understanding of the subject, it was decided to take under consideration the whole internal machinery of the dispensing and prescription apartments, and after a distribution and arrangement of the furniture, treat of them relatively, and illustrate if possible the mutual dependencies of every department. In order to be more fully understood, a rough drawing is herewith submitted of the proposed plans. The drawing marked Figure 1 represents the outlines of the pharmacy and distribution of shop furniture. Figure 2 shows the end or cross counter in the front store, giving a view of the rear side which is seen from the prescription department. Figure 3 presents the appearance of the three prescription desks with their compartments. The three prescription desks are of the same size, design, and finish.

In our plan it matters not whether the building to be occupied for a pharmacy is situated on the corner of streets, or in the block, the same design and finish apply to both situations. We regard that one front entrance is quite enough, while but

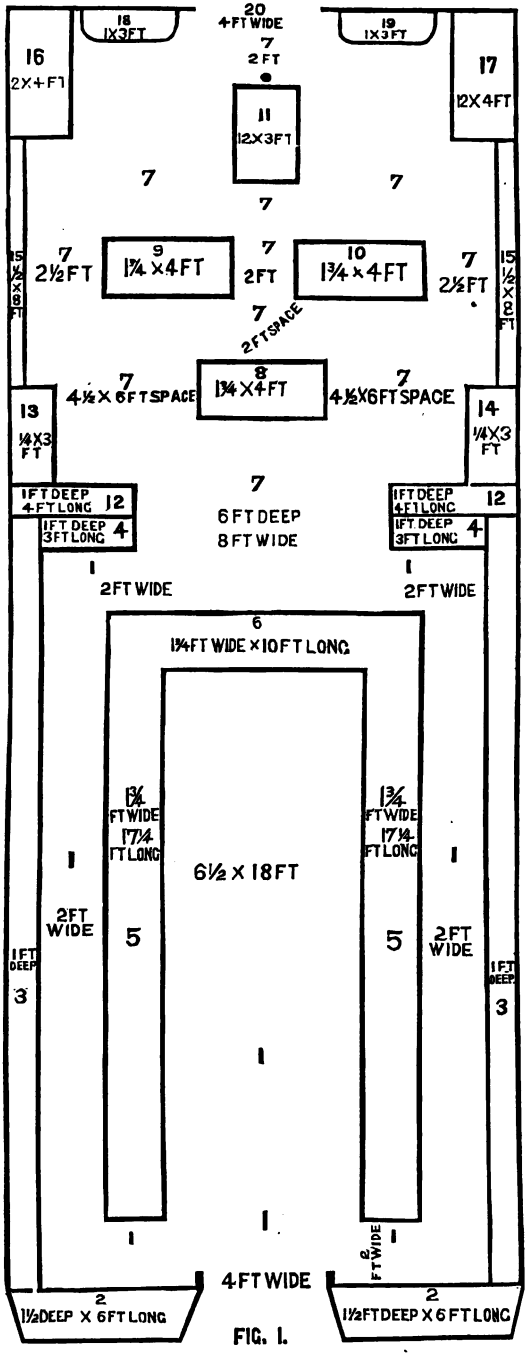
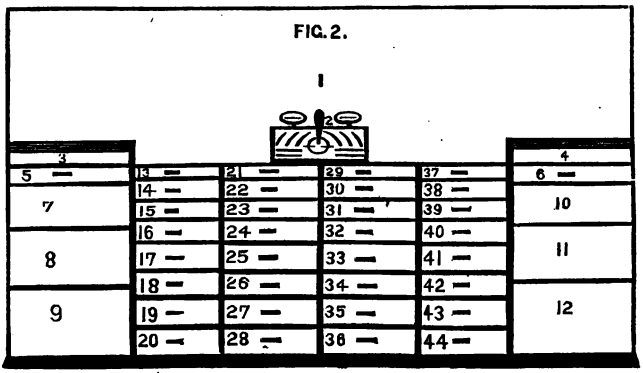

18
1X3FT
20
4FT WIDE
19
1X3FT
16
2X4FT
7
2FT
17
2X4FT
11
2X3FT
7
7
7
7
2½FT
9
1¾X4FT
7
2FT
10
1¾X4FT
7
2½FT
15½X6FT
15½X6FT
7
2FT SPACE
8
1¾X4FT
7
4½X6FT SPACE
7
4½X6FT SPACE
13
¼X3FT
14
¼X3FT
7
6FT DEEP
8FT WIDE
1FT DEEP 4FT LONG 12
1FT DEEP 3FT LONG 4
1FT DEEP 4FT LONG 12
1FT DEEP 3FT LONG 4
1
2FT WIDE
1
2FT WIDE
6
1¾FT WIDE X 10FT LONG
1¾ FT WIDE 1¾ FT LONG
6½ X 18FT
1¾ FT WIDE 1¾ FT LONG
1
2FT WIDE
5
5
1
2FT WIDE
1FT DEEP
3
1FT DEEP
3
1
1
1
8FT WIDE
1
4FT WIDE
2
1½DEEP X 6FT LONG
2
1½FT DEEP X 6FT LONG

FIG. 1.

one door in front leading to the main street will admit of a uniform finish inside, thereby greatly enhancing the good appearance of the establishment, and much space otherwise lost is utilized. If the building is on the corner, and a bow-window is desired, in which to show the ancient emblems of an apothecary shop, viz., glass globes with colored liquids, it would be preferable to place it near the rear end of the pharmacy and opening into the prescription department. In

FIG. 2.



The above represents the cross or end counter in the front apartment or dispensing department.

No. 1 shows the framed French plate-glass, in from 2½ feet high, and 10 feet long.

" 2. The scales.

" 3 and 4 represent desks on each end of the counter, of same size and style. One is used as a writing desk, with all appurtenances belonging thereto, and contains the day-book, cash-book, and ledger. The other is a depository for packages to be dispensed.

" 5 and 6. Money drawers, with patent locks (such as in general use).

" 7, 8, 9, 10, 11, and 12. Open cupboards with shelves, for dispensing bottles, containing oils, balsams, honey, and the like.

" 13, 21, 29, and 37. Label drawers.

" 14 and 38. Label drawers.

" 22 and 30. Twine drawers with partitions for different kinds, one a duplicate of the other.

" 23 and 31. Partitioned drawers for spatulas, wood, horn, and steel, and horn spoons; also paste cups duplicated.

" 15, 39, 16, and 40. Cut wrapping paper.

" 24 and 32. For lint, adhesive plaster (resin and isinglass), court plasters, &c.

" 17, 25, 33, 41, 18, 26, 34, and 42. Corks.

" 19, 27, 35, and 43. Cut wrapping paper.

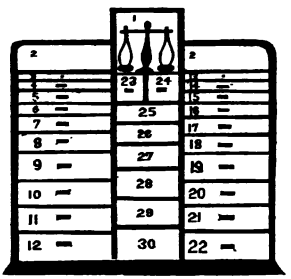
" 20 and 44. Manilla paper.

" 28 and 36. Rough wrapping paper for large packages.

many instances a window thus placed would be very useful as a means of giving light. We fancy that a side door in the front part of a pharmacy is quite unnecessary and greatly detracts from the good appearance of the store.

Our model pharmacy is of medium size, being 16 x 40 feet from the clear walls inside, and including both departments. Of the two rooms, which are divided by an arch door eight feet wide, we denominate the front, the dispensing department, which is 16 x 24 feet, and the back room, which is sixteen feet square, is known as the prescription department.

FIG. 3.



The above represents one of the three prescription desks.

No. 1. The prescription case and scales.
" 2. The six-inch moulding on front edge.
" 3 and 13. Walnut slides working in the same direction as the drawers.
" 4, 5, and 6. Label drawers.
" 7. Pill-box drawers.
" 8. Powder-box drawer.
" 9. Pill-machine drawer.
" 10. Cut paper for pill and powder boxes.
" 11. Cut wrapping paper.
" 12. Drawer for plaster irons, suppository moulds, plates, &c.
" 14. Drawer, furnished as writing desk to be used in writing labels, &c.
" 15. For paper, envelopes, &c.
" 16. Drug envelopes, labels, and spatulas.
" 17, 18, 19, and 20. Cork drawers.
" 21. Plaster skins.
" 22. For sundry purposes.
" 23. For twine.
" 24. For paste.
" 25, 26, 27, 28, 29, and 30. Spaces between shelving in the cupboard, in centre of case, to contain graduates, mortars, jars for ointments, and prescription bottles.

The drawers in both cases are to be partitioned as occasion requires.

We will proceed to describe as briefly as possible the internal arrangements of the pharmacy, which is signalized by Figure 1 on the drawing. The entrance or doorway in front is four feet wide. The bow-windows on either side are one foot and a half deep and six feet long. The space in front of the counter is six and a half feet wide by eighteen feet lengthwise. The spaces between the bow-windows and ends of side counters, as also the space behind the counters and between the ends of the cross counter in the dispensing department and casings of the arch door in front, is full two feet. The side casings and the end casings against the arch door in the dispensing department occupy the space of one foot from the walls. The side and end cases are of uniform finish and comprise cases of drawers beneath four feet high from the floor, and above are shelvings incased with glass doors. The stock of crude drugs are sampled and deposited in the side drawers for dispensing purposes. These drawers, which are uniform in size and finish, are neatly and appropriately labelled with the Latin names of the drugs which they contain. The end drawers are occupied with a full line of pressed herbs, which are contained in tin boxes made to exactly fit the drawers. The remaining drawers, which are not used for the purposes indicated, are appropriated to packages that are kept ready for dispensing and such other uses as expedience may dictate. The cases above and on the sides are furnished with shop bottles and jars neatly labelled with Latin names of the articles they contain, and, if possible, are always to be kept filled. The end cases on each side of the arch door are appropriated to patent and proprietary medicines. The side counters in the dispensing department are one and three-fourths of a foot wide by seventeen and one-fourth feet long. The mineral water department is located at the front end of one of these counters, to which the necessary space above and beneath is assigned. A suitable portion of the counters on either side is occupied with counter show cases, with four feet of space at the points where these counters join the end counter reserved for dispensing. These four feet dispensing divisions are on each side counter, and immediately in front

of the upright glass window which shields the end counter. Beneath the side counters are cupboards with wooden doors, in which are stored druggist's sundries and appliances, and from these repositories are dispensed the articles that are sampled in the top counter show-cases. On the front edge of the cross counter is placed a heavy frame containing heavy French plate glass. The glass, with frame included, is two and a half feet high from the top of the counter, and ten feet long, running the entire length of the counter, as shown by Figure 2. This counter, as the drawing will show, is thus shielded by the framed glass in front, which serves to protect the counter and obstructs conversation, at the same time placing the customer in full view of the prescription department, while those engaged in the prescription department can see what is going on in the front store. On each end of this counter are desks of the same size, design, and finish. One contains the necessaay appurtenances for writing, as also the day-book, ledger and sales-book; the other is used as a repository for packages to be dispensed. In the centre of the counter are placed the scales. Under the counter, at each end, are open cupboards, and above each space and attached to the under side of the counter are patent money drawers with locks (such as are in general use). Under the drawers the space is divided by shelves, which are used for dispensing bottles containing balsams, oil, honey, and the like, and between are four cases of drawers, which are to be appropriated according to the desires of the proprietor. These uses are indicated by explanatory notes accompanying the drawing, but must not be regarded as arbitrary, as they are simply used to illustrate our ideas. The space between the cross or end counter to the front prescription desk marked 8 is six feet. The three prescription desks 8, 9, and 10 are two feet apart, they are also represented by a drawing designated by Figure 3, and are one and three-fourths feet wide by four feet long. In front, along the edge, are mouldings six inches deep, and with the exception of the prescription scales and case and two stationary glass slabs for pills and ointments, the tops are kept perfectly clear. The compartments of the

desks and their uses are represented by explanatory notes which accompany the drawing, and are only intended to illustrate our ideas. The spaces marked 7 in the prescription department are explained by numbers marked on the drawing. Two feet in the rear of the prescription desks 9 and 10, and two feet from the rear entrance or back door is a counter two by three feet, which is protected in front by a lattice fender three feet wide by four feet high, and approximating the rear end of this counter is a mortar post running through the floor and into the ground. The counter is used for rough work, and is furnished with a stationary root knife, counter drug mill, cork presses, &c. On each side of the arch door, within the prescription department, are cupboards, with wooden doors four feet high and one foot deep, and above are cases with wooden doors eight feet deep. The cupboards beneath are used for books, journals, papers, bills, &c., &c., and serve as an excellent hiding-place when these sources of information are necessary as references. The cases above on either side are appropriated to poisons that are used in prescriptions and for general dispensing, and are kept under lock and key. One case is assigned to liquids and the other to solids, with subdivisions, so as to afford an easy means of classifying these substances; for instance, morphia and its preparations, strychnia and its preparations, &c. Adjoining these cases on each side are open shelvings for shop bottles for the distance of three feet along the side walls; beneath these on one side is the iron safe and writing desk, and opposite is a counter occupying the same amount of space, with closed cupboards beneath.

In rear of these cases, &c., are other cases six inches deep, extending to the wardrobe on one side and the sink on the other. These are divided by upper and lower cases, and are the same in appearance on each side, and the stock of medicine, &c., in one case is duplicated by the other. These are used for prescription medicines, and the duplication is to prevent confusion when the three prescription desks are used at the same time. The under cases are provided with wooden doors, and are used for storing extracts, pills, and pill masses,

essential oils, chemicals, ointments, &c. The top cases have glass doors, and are used for powders, tinctures, fluid extracts, and the like. In rear of these cases and joining the back wall on each side, are partitions extending to the ceiling, and four feet wide, which present a uniform appearance from the front store; behind, on one side, is the sink, and on the other the wardrobe for the use of those employed in the store. Near the sink on the end wall is a counter, 1 by 3 feet, and running along the wall is a gas-pipe with four burners and rubber tubing, attached to as many gas-stoves. On the other side, between the door and wardrobe is a corresponding counter containing retort stands, &c., and is used for percolating and filtering. Between these counters and in the middle of the back wall, is the rear entrance or back door leading to the dwelling, laboratory, or store-room, as the case may be. Directly over the back door is a large clock which is plainly seen from the front door, or any part of the store.

The only desire to which we have aspired, has been to give the outlines of a general plan, on which utility of space, convenience of manipulation, and beauty in appearance can be made to harmonize. Of course, the arrangements in detail must bend to individual fancy; therefore, if we have thrown out one suggestion of profit, we feel that our labor has not been in vain.

ON THE MANUFACTURE OF CHEMICAL AND PHARMACAL PREPARATIONS.

BY CHARLES C. FREDIGKE.

QUERY 16.—What chemical and pharmacal preparations usually furnished by the wholesale manufacturer can be economically and conveniently prepared by the pharmacist?

THE number of chemical and pharmacal preparations furnished at present by manufacturers is very considerable, indeed so much so that there is scarcely a class of preparations which they have not endeavored to make a specialty of.

Industry in our age is unmistakably tending to lighten and, if possible, to improve the products of human labor in all its manifold branches, and this is more particularly the case in the business of the apothecary. He is thus enabled to have a vast array of articles at his command which it would be next to impossible to prepare himself. Even the efficiency, elegance, &c., of his preparations depend upon this condition to a considerable extent. He has no absolute need of a laboratory, as in former times, making it thus possible to practice his profession with less capital, &c. On the other hand it is obvious that this same condition tends to produce indifferent ways of practice, encouraging superficiality, &c. Besides, modern industry often overreaches itself, employing more energy and capital than scientific and original research, thus producing more than professional demand really calls for, and compelled to maintain ascendency by producing specialties of a trivial nature claiming the attention of the profession upon more plausible grounds.

Convenience induces the apothecary to rely for his supply upon the manufacturer, and if we consider the scale on which the manufacture of chemicals, &c., is carried on, it is surprising to find that a considerable number of articles which are produced in large quantities can be made by the apothecary with a profit. Besides, it is necessary to convince himself of the standard quality of what he buys, which in many cases only approaches to, but does not possess, the requisites established by the Pharmacopœia.

For these reasons, if for no others, it is of material advantage to prepare as many articles as his space, facilities, and business allow of, the profit thus accruing per annum forming no small factor on his balance-sheet in his favor. Of all the chemicals proper nearly two-thirds and of all the pharmaceutical preparations more than three-fourths can be prepared with a profit of from fifteen to one hundred per cent., and in some cases even more; in fact the chemical staples only making an exception, they being produced upon a scale commensurate with their extensive use in the arts, and articles the preparation of which depends upon certain conditions, &c.,

such as locality, for instance, thus forming special branches of industry, like the production of essential oils, &c.

Interest and reputation, therefore, demand that we make our business as much as possible self-supporting, which is neither difficult nor very expensive, and although we realize this, yet but few put it into practice. Our means of operating are confined to rather narrow limits; we are content if our facilities meet the wants of the dispensing department, for testing, &c., in short, for chemical and pharmacal operations, where we hardly need to wet our fingers. We avail ourselves but little indeed of the very many practical appliances which technology and mechanical industry offer us. The attention we pay to our external appearance often leaves no time or room, and so we depend upon a gasburner and an evaporating-dish. Economy and convenience presuppose a certain amount of means and facilities, without which neither can be obtained. It will therefore not be out of place to make a few suggestions pertinent to the question.

In many cases it will be preferable, even necessary, to have metallic and other vessels and apparatus made according to one's own specifications, adapting them to the requirements of our individual business, than to buy them as offered by dealers. For instance, if percolation is of frequent occurrence it will be convenient to have a number of percolators on hand if we prefer to prepare extracts, solid and fluid, &c. A percolator of twenty inches in length, four to five inches width, with stopcock, two perforated disks, and cover, can be furnished either made of sheet tin or zinc, by any tinner at a fair profit for less than half the price asked by dealers. The same is the case with sand, water, and steam baths, gasburners, stills, condensers, &c. A vertical "Liebig's condenser," consisting of a glass or tinned copper tube, three feet in length and one inch diameter, the body of zinc, three inches in width, can be made for two dollars. An Argand burner, surrounded by a truncated funnel of sheet-iron, the lower diameter of which is three and a half, height seven, and upper diameter five and a half inches, covered by a disk of wire gauze held in position by a hoop for the purpose of easily

changing it when burned through or otherwise disabled, the whole standing on three legs passing through loops on the sides of the funnel for the purpose of raising or lowering it, will produce a blue, smokeless, and powerful flame when attached to a pipe supplying six feet of gas per hour; better than all the patent devices of this kind, and costing only one-third to one-half their price.

A very useful, in fact indispensable, apparatus will be found to be a portable furnace, made similar to those known as Kent's or Chilton's. Any tinner can furnish one better and more substantial than those offered by dealers in chemical apparatus at just one-half the price, making a fair profit. It consists of the cast-iron base of a round parlor stove intended for hard coal, the bottom of which base forms a recess to serve as an ashpit, and closed in front by a shutter arranged to increase or stop the draft from below. The round grate is supported by pins, one of which passes through the side of the base, and to which a handle fits in order to withdraw the fire at a moment's notice when necessary. Then comes the cylindrical body, two to three feet high, fourteen to fifteen inches diameter, lined with fire-clay, leaving the interior space about a foot "in the clear." In the upper half of this cylinder the front door is placed, seven inches long by six inches wide, also lined with fire-clay, and so made that it may be unhinged for the purpose of replacing it by another having an aperture for the insertion of muffles, &c. There are also two holes of one to one and a half inches width made in the lateral diameter, on a level with the lower line of the above door, for inserting an earthen tube or gun-barrel, or a solid iron rod, as a support for a mercury flask, long muffle, &c.; when not used these holes are closed by vertical slides. Below these holes strong handles are riveted. Opposite the above door an "elbow" with a damper is placed for the purpose of connecting the furnace with a chimney when convenient. The vessels fitting on the open top of the cylinder may be made of various forms and sizes to meet particular ends, or so arranged as to serve for all the operations likely to occur in a pharmacal laboratory requiring such an apparatus. Sand and

water-baths, evaporating pans, boilers, stills, &c., of different capacities and forms may be adapted to it. By surmounting it with a cone terminating in a pipe three to six feet long, provided with a damper, and placing a hole just above the grate for the insertion of the nozzle of a double bellows, it will form a blast-furnace very convenient for crucible operations, melting of metals, calcination, fusion, &c. Charcoal is used as fuel, giving heat sufficient to melt several pounds of silver. Mercury and zinc may be distilled, and potassium and sodium conveniently made; chloride of calcium for laboratory use can be fused in quantities of five to ten pounds at one operation, &c. There is no substitute for this piece of apparatus; the fire is under easy control by drafts, dampers, &c., and maintained for any length of time. No combination of Bunsen or any other gasburners will equal it for practical uses where a high degree of heat is required. One of its main advantages consists in its portability and its adaptation to many chemical and pharmacal operations, allowing of executing them on a profitable scale, and permitting of processes which cannot be carried on in a closed space on account of the evolution of deleterious gases, &c., or where the chances of explosion, danger of fire, &c., must be reduced to a minimum, in which cases it is conveniently placed in the open air.

In distilling from glass retorts, those of a gallon capacity are about the smallest size used profitably, for it is generally advisable to fill the body only to one-third, or, at most, to one-half, in order to allow space for the contents to rise, preventing them from running over into the receiver, &c., and yet with all possible precaution an accident may occur endangering the premises. In such and many similar instances a furnace like this is a convenience, for the want of which many processes are not attempted. Some minor details have been omitted because they suggest themselves, such as concentric rings, tongues of various forms, &c., besides it is generally known, having been in use among chemists for more than forty or fifty years.

A small upright and portable boiler forms another item, one holding forty to sixty gallons of water and having from

ten to fifteen flues, can be made for $75 to $100. This expense cannot be of much consideration, since wherever it is set up it will replace a heater. It is best made in two sections, the fire-box and cylinder, so arranged that the latter can be lifted off the former, taking no more room than an ordinary stove, and will pay for itself in a very short time. The advantages which such an apparatus offers are obvious; it is safe, economical, and convenient. Distillation, digestion, &c., &c., even percolation on Smith's principle (see Parrish's Pharmacy, p. 137), can be carried on to any extent. Medicated waters are thus most easily prepared, and of a quality with which the aqueous solutions of the respective oils filtered through magnesia will not stand a comparison, either in strength or permanence. Solid as well as fluid extracts, and many other pharmacal preparations, can be made by means of steam, so as to become a source of considerable profit. It is not necessary that it should be an elaborate affair; the one figured on p. 132, of Mohr and Redwood's Pharmacy, edited by Procter, is all that it needs to be. Of course all the requisite vessels have to be suited to this means of operating.

If the character of operations requires the frequent use of a still, it is preferable to have one made in such a manner that it is portable, instead of being set in brickwork. It should be fitted to a furnace, and so made that it can be worked in a water-bath as well as on the open fire. These and many similar points presenting themselves necessarily to every practical mind, it was thought superfluous to dilate upon them here any further; suffice it to say that a set of apparatus as indicated above exceeds any such combination known as Mohr's, Beindorf's, &c., in efficiency as well as range of application.

In the following, a list of preparations is given as they were required in the course of business during the last nine months; many more might have been added, but there was no demand for them. Others might have been added merely by calculation, but in most, several processes may be followed, having different results, and since their yield becomes a prime

factor in such investigations, it was thought best to abide by the opportunities offered.

The second column shows the amount in per cent. to be added to the cost of raw material (taken as a unit), for labor, fuel, &c.; the third presents the profit in per cent. as compared with the market price of the respective preparations.

Benzoate of Ammonia,	33	50
Chromic Acid,	200	40
Tannate of Quinia,	50	50
Bromide of Iron,	50	100
Acetate of Potassa,	50	—
Chloride of Platinum,	33	200
Iodide of Lead,	33	50
Arsenite of Soda,	300	—
Red Iodide of Mercury,	25	40
Valerianate of Iron,	33	—
Bromide of Calcium,	100	100
Oxalate of Ammonia,	50	85
Valerianic Acid,	100	40
Chloride of Calcium,	100	100
Valerianate of Quinia,	50	33
Iodide of Iron,	33	33
Green Iodide of Mercury,	25	100
Bromide of Sodium,	25	—
Hydriodic Acid,	100	25

It will be noticed that there are some preparations in the above list which show no profit; to these might be added iodide of potassium, iodide of ammonium, iodoform, and most preparations of iodine, phosphate of iron, red precipitate, bichloride of copper, &c.; yet in most of such cases, the quality of the yield compensates for the labor. In others, the process presents much of scientific interest aside from profit, as for instance, the preparation of valerianic acid, &c.

Galenic preparations, such as extracts, have been excluded, because but few are so situated as to easily procure the requisite material of the requisite quality. Competition has also depressed the market price of these concentrated tinctures so much, that it seems to be not profitable to prepare them, yet this is only apparent, for when strictly prepared they generally present a different appearance as to density,

color, taste, &c., as compared with those of the market. This is particularly the case with the extract of buchu, wild cherry, ipecacuanha, pleurisy root, lobelia, uva ursi, conium, cinchona, golden seal, lupulin, pareira brava, skullcap, cleavers, valerian, partridge berry, ergot, rhubarb, &c. Most of them can be prepared so as to yield considerable profit, besides superior quality. Their main physical distinction lies in a greater density or degree of concentration. It has been proposed to adopt specific gravity as a criterion of quality, and if this class of preparations is necessary, it might be used as one of the most reliable means at our command, by establishing at least an average standard in each particular case.

CHICAGO, August, 1872.

UNOFFICINAL PREPARATIONS.

BY ROBERT J. BROWN, LEAVENWORTH, KANSAS.

QUERY 45.—Are there reasons sufficient to warrant this Association in propounding formulæ for unofficinal preparations with a view to securing uniformity in dispensing?

THIS query refers partly to a large line of preparations which are in great demand, and well known in this country as "elixirs." To attempt any formulæ of their composition would occupy too much space.

A few years ago, a preparation of Peruvian bark was introduced as a proprietary medicine, under the name of "Elixir of Peruvian Bark," which contained in addition to the bark, aromatics, sugar, and diluted alcohol. It was found so popular and pleasant, that manufacturers conceived the idea of preparing in this form all bitter and otherwise unpleasant remedies.

Without entering, however, into the merits of them as medicinal agents, we can look at them in their present condition as articles of merchandise. This pleasant form of administering medicine seemed to strike the medical practi-

tioner so favorably that there is scarcely a village in our country where they are not daily prescribed.

It cannot be denied that a preference is given to the pleasant elixir over the nauseous solutions, which have so much interfered with the success of the practice of medicine.

To prepare medicines in such a form as will render them palatable, without destroying any of their virtues, should be properly considered in the art of pharmacy.

Since the introduction of this class of medicines, a large number of persons have taken them, because it was an easy way to take medicine, besides a larger number who resorted to them for various ailments, so that in a few years they have become the most fashionable of all existing remedies, and would probably continue were it not for the unreliable character of these unofficinal preparations, as they are offered to the Western trade. The formula is retained as a secret; they are advertised and introduced like nostrums by various makers, claiming superior virtues for their elixirs, recommending preparations of little or no value, and forcing physicians and pharmacists into prescribers and dispensers of semi-nostrums.

The pharmaceutical profession have for a long time been under the control of factors of unofficinal preparations, who have by extensive advertising created a demand for them among the medical profession, so that many pharmacists were compelled to yield to their wishes by purchasing these preparations. A large number of pharmacists refused to be led away from the principles of their profession, and believed by ignoring them entirely, their existence would be of short duration. It was not so, and they were finally compelled as a question of business to devise or select the best formulæ, and commence the manufacture to meet the growing demand, so that in strength, taste, and appearance they all differ.

A physician ordering any of the elixirs could not obtain the same preparation in any two stores, except a special maker was prescribed.

There is not an enterprising pharmacist in our country who is not either a manufacturer or vender of unofficinal preparations. Therefore the writer is of the opinion that there are

sufficient reasons why this Association should propound formulæ for all unofficinal preparations. They would be uniform in their composition all over the country. It would give pharmacists an opportunity of preparing them, instead of purchasing them. It would elevate his standing to that of a manufacturer instead of merely a vender. It would take the profits from large manufacturers, and place them in the hands of pharmacists where they belong. It would take away whatever reputation A., B., or C. may have obtained by making elixirs, purporting to contain quinia or strychnia, which are deprived of their bitter taste, and show to the world a stupendous fraud in the absence of these bitter remedies.

Now since we find these preparations so popular and seem to meet the approbation of the medical profession and the public, cannot this Association do something to improve their present condition?

We believe the time has come when these preparations should be prepared by every pharmacist. If this Association will take a forward step in the publication of the best formulæ that can be obtained, we believe there are thousands of apothecaries who will throw aside A., B., and C.'s preparations, and prepare them after the formulæ propounded by this Association, rejoicing that they are free from the odium of dispensing semi-nostrums, and the American Pharmaceutical Association will continue in its good work of disseminating useful information to American pharmacists.

August 26th, 1872.

SENEKA.

BY R. ROTHER, CHICAGO.

QUERY 13.—What is the best method of avoiding the pectinous principle of seneka in the process for the syrups of that drug?

FREMY has shown that pectose, the source of all the pectin bodies, is so inseparably linked with cellulose, that a molecular transformation can only part them. But although the foun-

tain head of the pectin group has never been explored in its aboriginal state, the isomeric derivatives of pectose have all yielded to investigation.

Many plants, roots, and particularly unripe fleshy fruits, contain pectose largely as a normal constituent, often associated with organic acids, and invariably with the so-called pectin ferment or pectase.

Whilst the pectin bodies bear a great resemblance to the carbohydrates, pectase is a nitrogenous principle, an undetermined protein substance, similar to other analogous ferments. It always occurs in the vegetable kingdom simultaneously with pectose, either as soluble or insoluble pectase. Alcohol coagulates pectase, destroying its solubility in water, without, however, impairing its property as a ferment.

Pectose is absolutely insoluble in water and all other known solvents. But the action of pectase, or the combined influence of a diluted acid (acetic acid excepted) and an elevated temperature, convert it into pectin. The existence of pectose is, therefore, confined to the immature growths.

The members of the pectin group, in many respects similar to the carbohydrates, do not, however, contain oxygen and hydrogen in the proportion to form water. They are not convertible into glucose, and are insusceptible of the vinous fermentation.

Pectin is present in matured fruits. It is a white, amorphous, tasteless, and odorless body, soluble in water without producing a gelatinous solution, and insoluble in alcohol, which precipitates it from the aqueous solution in a gelatinized state. Long-continued boiling with water or diluted acid until the viscid character of the solution has disappeared change it into an isomeric form called parapectin, which is also insoluble in alcohol. Prolonged boiling of the new body with diluted acid produces the isomere denominated metapectin, likewise insoluble in alcohol. Pectin, but more especially metapectin, enter into combination with most acids, particularly organic. The resulting compounds are soluble in water, but insoluble in alcohol.

Pectosic acid is generated as a gelatinous mass, through

the action of pectase on a solution of pectin. It is scarcely soluble in cold water, but dissolves on boiling, again gelatinizing as the solution cools. It is insoluble in acids, bases, and alcohol. A cold dilute alkaline solution also converts pectin into pectosic acid, but an excess of alkali or a boiling temperature result in the production of pectic acid; the same is accomplished by the protracted influence of pectase.

Pectic acid is also generated by the vegetable organisms, but only in a trifling extent. It originates directly from pectose by contact with alkalies. When moist, pectic acid is gelatinous. It is insoluble in alcohol and cold water, and scarcely soluble in boiling water, but readily soluble in alkaline liquids, and in the solutions of many neutral salts, especially ammonium salts, of organic acids and the soluble salts of pectic acid. All these solutions give gelatinous precipitates with alcohol.

Continued boiling with water converts pectic acid gradually into soluble parapectic and metapectic acids. The same results slowly by means of cold water, but more rapidly by excess of alkali.

Parapectic acid is soluble in water, but insoluble in alcohol. Its salts soluble in water are also precipitated by alcohol.

Metapectic acid occurs in overripe fruits. It slowly results from an aqueous solution of pectin with or without the intervention of pectase; but rapidly when heated with energetic acids, or an excess of an active base. It is soluble in both alcohol and water. Long boiling of the aqueous solution resolves it into acetic acid, and a brown humous matter. The salts of metapectic acid are all soluble in water.

By aid of the above accumulated facts it becomes evident that all the pectin bodies, as well as their combinations with acids and bases, metapectic acid excepted, are insoluble in alcohol, and that only pectin, parapectin, metapectin, parapectic and metapectic acid, are soluble in water. That pectosic acid, although soluble in hot water, is scarcely soluble in cold water, and insoluble in acids and alkalies. That pectic acid, whilst itself insoluble in water, is dissolved by alkalies and solutions of many neutral salts, and that

beyond pectic acid, the propensity of the pectin bodies to gelatinize has ceased. Therefore either pectin or pectic acid, if present in any galenical preparation, when combined with an alkali, will, in a short time, by the course of metamorphosis, lose the property to gelatinize in the presence of an acid, or in other words, no longer exist.

It is now proposed to obviate the pectinous principle existing in seneka root.

The medicinal constituent of seneka root is the polygalic acid. But it is highly probable that the virgineic acid, or whatever the resinous or apparently oily body may be, also exercises an appreciable influence.

Both water and alcohol thoroughly extract the polygalic acid, but whether water alone has a similar effect on the other body, is yet problematical. Polygalic acid, as it exists in its normal state, associated with a number of obscure bodies, is extremely soluble in officinal alcohol, but simultaneously with it some of the undetermined components are also eliminated. If now the alcoholic solution be evaporated, an abundant brownish, transparent residue remains; this is again readily and completely soluble in officinal alcohol. However, if this residue or the alcoholic liquid be treated with water, a dense milky turbidity is produced, which by repose separates into a clear yellowish liquid and a yellowish-white creamy superstratum. The mixture cannot be successfully clarified, as the separated matter rapidly chokes the filter. If, however, magnesium carbonate be introduced the filtration can be satisfactorily accomplished. The precipitated substance is completely redissolved by heat, again separating more compactly as the solution cools. It is instantly and permanently dissolved by ammonia, the fixed alkalies and their carbonates, and immediately reprecipitated by the addition of an acid. The perfect solubility of this matter by heat, and its definite action toward alkalies and acids, indicate that it is neither resinous nor oily in character, and therefore very probably the peculiar substance which Quevenne choses to designate as virgineic acid. Its acid character is far more positively asserted than that of poly-

galic acid, which latter seems to be surprisingly indifferent toward bases.

The writer, therefore, believes, since officinal alcohol so admirably exhausts the representative agents of seneka root, namely, the polygalic and virgineic acids, and so effectively excludes the inert, fermentable, and otherwise troublesome matters, namely, gum, pectin, and albumen, and since this menstruum answers better than any other for the purpose of repercolation with a fine powder, that fluid extract of seneka root, although not an officinal preparation, may be prepared with officinal alcohol, from a very fine powder, by means of repercolation.

If seneka root in fine powder is exhausted with officinal alcohol by percolation, the percolate freed from alcohol by heat, the residue diluted with water, treated with magnesium carbonate, and filtered, the filtrate will be clear and transparent and yield a syrup of the required strength and fine appearance. The writer employed this process nearly three years ago, but previous to its adoption the action of alkalies on the dissolved constituents in the alcoholic percolate was examined. This percolate, as above stated, was necessarily free from gum, pectin, and albumen, and when mixed with alkali, preferably ammonia in slight excess, then water no longer disturbed its transparency, the solution remained intact. This, when evaporated to a syrupy residue, mixed with water and converted into syrup by the addition of sugar, with heat, yielded a result of satisfactory appearance and quality. But after a few days the body assumed to be virgineic acid invariably became insoluble, and rose to the surface as a scum, apparently composed of shining scales, soluble in ammonia. This effect was possibly due to the weak affinity existing between it and the ammonia which held it in solution, or perhaps to the polygalic acid, which now began to exert an action on the base. The unsuccessful issue of this experiment led to the process with magnesium carbonate. But the writer soon abandoned that for the very superior following one.

When seneka root is exhausted with diluted alcohol, then

gum, pectin, and albumen will exist in the percolate. If this be heated to boiling, the albumen is thrown out, and if the heat be continued, as in the officinal process for syrup of seneka, until the alcohol is expelled and the liquor becomes dense, the pectin is more or less completely changed and precipitated, but the obnoxious gum remains in persistent union with the aqueous solvent.

Beyond a doubt the pectin body of seneka root is either pectin, one of its two isomeric forms, or a mixture of all three, because the succeeding members of the pectin group would probably remain unextracted under the existing circumstances, and if parapectic or metapectic acid had been present, neither of them would have again separated from the aqueous or weakly alcoholic solution through the influence of acids, bases, or incessant heat. The only remaining insoluble member of the group that could possibly occur in the solution is pectic acid, but this is rarely found in plants ready formed as a result of organic action, and then only in very small quantity, for the reason that the transformation is rapidly carried into the succeeding link. But in case pectic acid were present, it could only become soluble in combination with an alkali, or through the intervention of some particular neutral salt, neither of which is known to be present on this occasion.

If now the aqueous or weakly alcoholic extract of seneka root be evaporated to a small bulk, the pectin or its isomere passes into insoluble and more or less gelatinous pectosic or pectic acid. However, to insure this result perfectly, the solution must be boiled a long time, to convert not only all of the pectin but also the generated pectosic acid into pectic acid, otherwise, especially since pectosic acid is soluble in boiling water, a further precipitation will take place after the liquid has been cooled and filtered. This effect particularly is a very annoying feature of the officinal process, because, after the exceedingly tedious operation of filtering this liquid is accomplished, the addition of sugar almost immediately produces a copious flocculent precipitate, and sometimes if the syrup be boiled it will even gelatinize.

Now aside from the incumbrances superimposed by pectin,

the deleterious presence of gum exerts the most injurious tendency, in fact, the presence of pectin and albumen shrink into insignificance before the fermentable predilection of the carbohydrates denominated gums. The presence of gum in neutral syrups, even conjoined with the greatest possible proportion of the more stable carbohydrate, sugar, often induces a rapid destruction of the compound by fermentation.

It is vastly more difficult to exclude the gummy matter than both pectin and albumen, and therefore the writer deems it expedient rather to tolerate its presence and protect the preparation from change by means of pharmaceutically proper and therapeutically compatible preservatives. Alcohol in just sufficient proportion to insure the required permanence suggests itself as the most consistent and adaptable agent. Hence the writer proposes to give preference to the method of securing the stability of the compound by the interposition of a therapeutically indifferent body, or one which at least is harmless when applied only in a certain minimum proportion.

The process which the writer now proposes and emphatically recommends by reason of its numerous advantages, is based upon the following facts, namely: The activity of seneka root is easily and thoroughly exhausted by means of a menstruum composed of one-fourth officinal alcohol and three-fourths water, but since so aqueous a menstruum cannot be utilized together with a fine powder, the root must be employed in a coarse condition, and to contravene the difficulty of extracting a coarse powder thoroughly this is macerated during a moderate time before proceeding with the percolation.

Seneka root is not easily pulverized; it is therefore a signal advantage of the process which admits the application of a coarse powder. The grade No. 24 is sufficiently fine. This is macerated for twenty-four hours with a volume of menstruum equal to one fluid ounce for every troy ounce of the root. Then packed moderately firm into a cylindrical glass percolator, forming a column of medium height, and treated with the above-described mixture until four fluid ounces of percolate has been obtained from every troy ounce of the root.

The resulting percolate is first boiled a few minutes, and then condensed one-third by evaporation at a lower temperature. After cooling and repose it is filtered, and the filtrate converted into syrup by the addition of sugar and the application of heat.

At first view this process does not materially differ from the officinal; however, the difference in the result is most strikingly apparent. The deficiency of alcohol employed in the menstruum of this process permits the expulsion of a proportionately greater volume of water by the subsequent evaporation, thus enabling the residuary liquid to retain a considerable amount of alcohol, especially since the action of heat was so limited as to expel only one-third of the whole volume of liquid. The hydro-alcoholic residue allows a rapid separation of the precipitated matters, and the presence of alcohol in this liquid facilitates its filtration in most surprising manner; moreover, and very importantly, the low temperature and its short duration did not appreciably alter the character of pectin which is consequently held in solution, and as the proportion of the remaining alcohol is sufficient to prevent the decomposition of the gum, therefore the permanence of the resulting syrup is secured. The pectin slowly changes into ever soluble metapectic acid, and the preparation remains permanently clear.

Of the two officinal syrups containing seneka root, the compound syrup of squill is the most unstable, owing to the extraordinary proportion of gum of which squill root is composed. This is a very popular preparation, and always in demand, therefore it should always be of good quality and permanently protected from change, and hence the writer's proposed general process for the two syrups of seneka especially pertains to the compound syrup.

The two formulæ are as follows:

SYRUP OF SENEKA.

Take of—

Seneka Root in No. 24 powder, . . .	8 troy ounces.
Sugar, ...	32 "
Alcohol, Water, ...	of each sufficient.

Mix one measure of officinal alcohol with three of water; pour eight fluid ounces of this mixture on the séneka; macerate twenty-four hours, and pack the mixture moderately firm into a cylindrical glass percolator forming a column of medium height; then pour on the above menstruum until two pints of percolate have passed; heat this slowly to boiling; maintain this temperature a few minutes, and evaporate over a sand-bath to twenty-two fluid ounces; let cool; pour the liquid into a tall bottle, and when the insoluble matters have perfectly subsided, filter by pouring the clear liquid carefully into the filter first, and when this has passed through adding the turbid remainder; in the clear filtrate dissolve the sugar with the application of heat, and strain through muslin while hot. The product measures two and a half pints.

COMPOUND SYRUP OF SQUILL.

Take of—

Seneka Root in No. 20 powder, Squill Root " "	of each 8 troy ounces.
Sugar, ...	76½ troy ounces.
Antimonio-potassic Tartrate, . .	96 grains.
Alcohol, Water, ...	of each sufficient.

Mix one measure of officinal alcohol with three of water; pour three pints of this mixture upon the powdered roots, and let the mixture macerate for twenty-four hours; then place it into a cylindrical glass percolator forming a moderately low column, and pour on more of the menstruum until four or five pints of percolate have slowly passed; heat this slowly to the boiling-point, and then evaporate it over a sand-bath to three and a quarter pints; let cool; pour the liquid into a tall bottle, and when the insoluble matters have perfectly subsided decant the clear liquid carefully into a filter; when it has passed through, follow with the turbid remainder; in the clear filtrate dissolve the sugar and the antimonial tartrate with heat, and strain through muslin while hot. The product measures six pints.

A PROTECTED SOLUTION OF FERROUS NITRATE. (LIQUOR FERRI PROTOXIDI.)

BY ROBERT W. GARDNER.

Take of—

Protosulphate Iron (pure crystals),	1300 grains.
Water of Ammonia (s. g. .960),	fl. ℥iij.
Nitric Acid (s. g. 1.393),	fl. ℥j.
Granulated White Sugar,	q. s.
Oil Sassafras,	♏iij.
Alcohol,	fl. ℥ss.
Water,	q. s.

Dissolve the sulphate iron and two ounces of sugar in one pint of water; add the water of ammonia, gradually stirring with a glass rod; pour this on a paper filter, and wash with sweetened water (2 oz. sugar to Oj water), until free from sulphate ammonia; let the magma drain until droppings cease, and transfer filter and precipitate to a large mortar; add 4 oz. Troy sugar, 2 fl. oz. water, and work with the pestle until well mixed.

To the ounce of nitric acid add 3 fl. oz. water, and mix. Add this gradually (stirring constantly), and toward the last drop by drop, until the green color of the ferrous oxide begins to change to a brown, being very careful that this change *begins only.* Having graduated a bottle to hold two pints, place sugar 28 oz. Troy in it, and filter the liquid through paper upon this, adding water, if necessary, through the filter to bring the measure of the whole to two pints.

Dissolve the oil sassafras in the alcohol, and add to the liquid; finally, fifteen drops nitric acid; shake thoroughly until dissolved, and if not perfectly clear, filter through paper.

The object of the last addition of the nitric acid being to prevent the deposition of iron and to keep it permanently in solution, if after standing the solution becomes cloudy, a few drops more should be added and the whole filtered, no more however being used than sufficient for this purpose.

When carefully prepared this solution is nearly white, perfectly clear, shows the reaction of a proto salt with ferridcyanide potassium, and yields a copious precipitate of black ferrous sulphide with sulphide ammonium. The above tests were applied to a sample which had been made six months subject to almost daily use, and consequently exposed to the action of atmospheric air; and in fact, from my experience, I may say that I have kept it without visible change for years. It contains a little over ten grains anhydrous protoxide in an ounce. Ammonia being an imperfect precipitant of the ferrous oxide, the quantity of protosulphate iron is purposely made a little in excess of forty grains to the ounce, corresponding to 10.359 grains FeO.

I have prepared this solution combined with quassia by adding of a concentrated tincture one drachm to an ounce, distinguishing the two solutions by the respective titles "sweet" and "bitter." Quassia, containing no tannin, seems peculiarly adapted to combination with iron salts, and is also a very efficient tonic.

The stable character of this preparation, the wonderful facility with which it is assimilated, the fact that it is readily borne by the most irritable stomach, either child or adult, and that it does not constipate the bowels, renders it a most valuable assimilative preparation of iron.

The dose will vary from one-half to a teaspoonful for adults, five to twenty drops for children. It is found necessary in some instances to begin with very small doses and gradually increase.

It is, of course, incompatible with the alkalies and their carbonates, and should never be diluted except at the moment it is taken. It has been advantageously combined with sulphate quinia, the sulphate being suspended in it. It should be taken three times a day, after meals.

(Bergen) Jersey City, N. J.

ON EXTRACTUM CANNABIS INDICÆ.

BY W. SAUNDERS, LONDON, ONTARIO, CANADA.

THE United States Pharmacopœia orders the extract of Indian hemp to be prepared by dissolving the crude extract as procured from India in alcohol, filtering the solution and evaporating in a water-bath to a proper consistence. This crude extract, known also as *Gunjah*, is not now, as far as I have been able to learn, to be obtained either in the American or English markets, and even were it to be had, it is scarcely probable that as reliable a preparation could be made from an impure commercial extract, as could be obtained by operating upon the herb itself, because inferiority in the herb could be much more easily detected than in that of the extract.

In the British Pharmacopœia it is directed that the extract be made from the herb, by taking one pound in coarse powder and macerating it with four pints of rectified spirit for seven days. The tincture is then to be pressed out, the spirit recovered by distillation, and the residue evaporated in a water-bath to the proper consistence.

The authors of the United States Dispensatory remark that it is probable that the purified extract of the United States Pharmacopœia would be found more efficient than that made according to the British Pharmacopiœa, from the dry herb; but this opinion is given doubtfully and probably rests on very insufficient data. It is well known that the American market has long been, and probably still is, chiefly supplied with this article by a few English makers, who doubtless prepare it from the dried herb, and it is equally well known—and I am sorry to be obliged to admit it—that this imported extract has been very variable in quality, varying much in color, odor, and activity, and while professing to be an alcoholic extract, is sometimes only very partially soluble in that menstruum. It is very desirable that such active and important remedies should be made by the pharmacist as far as possible for his own use, and in this instance there is no

reason why any skilful hand should dispense any other than his own make.

Since maceration is confessedly inferior to percolation as a means of exhausting most drugs, I have preferred in my own operations to adopt the latter process, and would submit the results of the following experiment to show the yield and probable cost of preparing this extract.

One pound of the East India herb was ground fine enough to pass through a sieve of about twenty meshes to the inch, then moistened with eight ounces of alcohol, packed tightly in a percolator, and allowed to stand for twelve hours. One pint of alcohol was then added to the material, and in about half an hour afterwards the percolate began to drop slowly, and continued to do so until eight ounces had passed, when an additional eight ounces of alcohol was added, which increased the quantity of the percolate to a pint. Another pint of alcohol was added, and still another to produce the second and third pints of percolate, which were then evaporated separately, with the following results:

The first pint yielded	10 drs. 12 grs.
The second pint yielded	4 drs. 16 grs.
The third pint yielded	1 dr. 30 grs.

Total yield, 15 drachms, 58 grains, lacking 2 grains only of 2 Troy ounces.

The usual price of the herb in the English market is from 8*d.* to 10*d.* sterling per pound, and may be roughly estimated as worth 25 cents here. Four pints of alcohol were used in this experiment to produce three pints of percolate, the other pint remaining absorbed by the material, part of which might have been displaced by the cautious addition of water. By careful manipulation from 2½ to 3 pints of the alcohol might be recovered by distillation, which would much lessen the cost of the product, but supposing the whole of the alcohol to be lost the cost of the extract, estimating alcohol at $1.60 per gallon, would be about 53 cents per ounce.

NOTE ON THE TRIPLEX PILL OF DR. JOHN W. FRANCIS.

BY EDWARD R. SQUIBB, M.D.

MANY years ago the well-known Dr. John W. Francis used a pill which he called triplex, and which became so popular as to be widely known beyond Dr. Francis's own locality. It originally consisted of equal parts of socotrine aloes, scammony, and mercurial pill mass, in a pill of three grains.

During the latter part of the professional career of Dr. Francis he modified the formula for the then well-known triplex pill, and the modification was generally accepted as an improvement. The pill was then long prescribed by physicians and used by hereditary transmission to families simply as triplex pill, and its composition neglected and forgotten except by the pharmacists who made them, and finally the pharmacist who principally served Dr. Francis before his death alone had the formula.

Some ten years ago, when the writer was serving as a committeeman of the New York Academy of Medicine in preparing a report on the United States Pharmacopœia, previous to its revision, he applied to the son of Dr. J. W. Francis, the present Dr. Samuel W. Francis, for the improved formula of his father, with a view to its republication. Dr. S. W. Francis examined his father's papers, but without finding the formula, but informed the writer that Messrs. Delluc & Co., pharmacists, had made the pill for his father, and continued still to make and sell them. The writer then applied to Mr. Delluc for the formula, but it was refused, and the subject was dropped.

Recently, however, Dr. Samuel W. Francis, in a note to the writer, sends a formula for the pill, saying that he obtained it from Messrs. Delluc & Co., and communicates it for publication.

Although the pill, under the close policy of Messrs. Delluc & Co., has declined in its general use of late years, it is still highly valued by many physicians as one of those happy

combinations which grew out of the long experience and fertile resources of eminent men in the profession of past years. When it is remembered how successful these men were in their practice, and hence what a hold upon the confidence of the community they have handed down to the profession of the present day, it does not seem wise to lose or disregard the agencies by which they reached their beneficent results.

The formula for Dr. Francis's triplex pill is as follows:

Take of—

Powdered Socotrine Aloes, Powdered Scammony, Mercurial Pill Mass,	of each	1 troy ounce.
Croton Oil, ...		20 minims.
Oil of Caraway, ...		1½ fluid drachms.
Tincture of Aloes and Myrrh, or Elixir Proprietatis of Paracelsus,		2 "

Mix the ingredients well together by very thorough trituration, make a pill mass, and divide the mass into four hundred pills.

The usual aperient or laxative dose is one pill at bedtime until the natural condition is restored.

BROOKLYN, August, 1872.

VEGETABLE WAX IN PHARMACEUTICAL PREPARATIONS.

BY GEORGE C. CLOSE.

QUERY 54.—Does the Vegetable Wax known in trade as Japan Wax possess any advantage over Beeswax in pharmaceutical preparations?

I FIND on trial that a small portion of white wax placed in a capsule in a water-bath becomes liquid when the temperature of the water reaches 154° Fahr. It congeals again when

the temperature is reduced to 150°. Japan wax, under the same circumstances, becomes liquid at 126°, and congeals again at 110°.

Simple cerate made with white wax liquefies at 138°, and congeals at 132°. When made by substituting Japan wax for the white wax it liquefies at 122° and congeals again at 98°. I infer from these facts that Japan wax is not a true variety of wax, but it resembles stearin more than wax in its properties. It is more plastic than stearin at the temperature of the body, but not so much as either white or yellow beeswax.

I do not suppose that beeswax possesses any therapeutical properties apart from the fact that it is not irritating, and that it raises the point of liquefaction of the oils used in combination with it in ointments and cerates, and by its plastic property produces the consistence required.

I believe that these objects may be better effected by the use of beeswax than Japan wax, and have not as yet discovered any advantages in the use of Japan wax over beeswax.

BROOKLYN, N. Y.

COMPOUND ELIXIR OF MANDRAKE.

BY GEORGE H. SCHAFER.

℞.—Rad. Podophylli Pelt. (No. 60 powder), . . ℥xij.
" Jalapæ (No. 60 powder), ... ℥iv.
Alcohol, Officinal, ... q. s.

Moisten the above with two ounces of the officinal alcohol; then pack in a cylindrical percolator, and pour on officinal alcohol until one pint is obtained, and following with water as a menstruum until the percolate is nearly tasteless. Retain this in jar No. 1.

℞.—Rad. Hydrastis Can. (No. 50 powder), . . ℥viij.
Fol. Sennæ (No. 50 powder),
Rad. Glycyrrhizæ (No. 50 powder), ää . . ℥xx.

Menstruum: Alcohol 1 part, Water 3 parts, q. s.

Moisten with eight ounces menstruum; pack carefully in a conical percolator; pour on the menstruum until one gallon of percolate is obtained; then remove the contents from the percolator into a tincture-press, and express all remaining strength by the aid of one-half gallon of hot water; mix with the percolate, and retain in jar No. 2.

℞.—Sem. Anisi (No. 50 powder),
" Carui (No. 50 powder),
Cort. Cinnamomi (No. 50 powder), āā . . ℥v.
Sem. Coriandri (No. 50 powder), . . . ℥viij.
Caryophylli (No. 50 powder), ... ℥ij.

Menstruum: Alcohol dil., q. s.

Moisten with six ounces menstruum; pack in a conical percolator, and pour on the menstruum until one-half gallon of percolator is obtained; then add water until all the spirit menstruum has passed; then mix all of this with the contents of jars Nos. 1 and 2, and add water until the whole measures four gallons; filter.

Licorice root is herein partially intended as a substitute for sugar, which is generally used in preparing elixirs, but is omitted in this formula, as it would have a tendency to generate lactic acid, which suppresses the therapeutic action of the podophyllum pelt. Licorice root is also intended for its well-known qualities of masking the taste of bitter remedies.

The object of this new elixir is to supply an agreeable preparation of the above active medicines for the many requirements of bilious localities.

FORT MADISON, IOWA, August 19th, 1872.

II. MATERIA MEDICA.

NOTE ON RHUBARB.

BY EDWARD R. SQUIBB, M.D.

THE New York market for rhubarb, during the past year, has been very abundantly supplied with all ordinary varieties and qualities, and prices have still tended downward, though the actual decline has been small. The usual results of a full and a falling market have been illustrated throughout the year by a small demand, and slow and difficult sales. Prices have ranged from 40 cents to $1.20 for the various grades of quality, the powder being always below the root in price and far above it in appearance, but with the conspicuous absence of any grade of powder which *in price* represented the higher grades of quality in the root. Very handsome-looking "Dutch trimmed" and home manipulated rhubarb has led the market in price throughout the year, and the "handsomer lots" have always commanded "fancy prices" and full profits, while not a single parcel of such rhubarb has been seen by the writer which did not cause a strong suspicion that it was produced from the inferior Austrian, Crimean, or home-grown root. These varieties, and particularly the Austrian, when skilfully manufactured, give not only a fine general appearance or surface of the same color as the fracture, but also give a fine, sound, mottled compact fracture of good color. In short, the whole commercial character is overdone, and much too good.

Within the past three years it has become a common trade practice, based upon a convenience to the retailer and consumer, to cut up rhubarb root into small squares or slices by means of fine saws.

This convenience is at best of the patent medicine, or ready-made clothing store kind, while the disadvantages do not seem to be considered. This cutting is but a branch of the drug powdering business in disguise, because its tendency is, under the plea of convenience, to remove the landmarks or

indications of true quality, and make the drug more difficult to discriminate.

If the Mosaic law against the removal of the landmarks was enforced against druggists, there would be less competition in the trade, at least so far as the succession from father to son is concerned.

Well-selected and inspected rhubarb is always accessible to the pharmacist who chooses to buy it at the price of this cut root, but by far the best practice is for the pharmacist to make the selection for himself, and then, if desirable, cut it for himself with a small fine panel or back saw.

The finer grades of Chinese rhubarb, which are now abundant in the market at about $1.20 per pound by the chest, should be had from the druggists at about $1.40 in parcels, of say five pounds. From five pounds of such rhubarb more than one-half, or say three pounds of root, can be selected which is thoroughly well adapted to the use of dyspeptics, or those who require the aromatic and tonic qualities of the finest pieces; while the remainder, including the less convenient pieces from the sawing, is equally well adapted to the more numerous ordinary aperient uses of the drug, and may be easily powdered fine enough in a common iron mortar. Thus the pharmacist would realize from 5 pounds, at $1.40, say 2 to 3 pounds, worth $2 per pound, and the remainder in an unexceptionable powder at whatever cost he may put upon the labor, selecting and powdering.

Without usurping the office of a detective for the rhubarb market, the writer has known of at least four invoices imported within the past year which were entirely and thoroughly worthless. Two of these invoices may have been smuggled in, though the probabilities are against any efforts to smuggle such merchandise. But the other two invoices passed through the custom-house, and were admitted to entry by the proper Government inspectors of drugs. One of these shipments was invoiced at ten pence sterling, and the other at one shilling and three pence sterling, prices which are practically equivalent to twenty and thirty cents gold, per pound, as the foreign cost. Even at such prices these grades

are the very dearest of all, because entirely without value. What the ultimate destiny of such parcels may be, it would be curious to know, but such things seem past finding out.

The writer presents herewith, in the exhibition-room of the Association, two cases of rhubarb, which well illustrate this note, and fairly represent the better grades now and during the past year found in abundance in the hands of several of the prominent importers.

The smaller, or half picul case or chest, is from a shipment of forty such chests, which came by the overland route to Messrs. Reed & Co., and arrived unusually sound. Only three or four chests were found to be attacked by worms, and these only to a limited extent. A part of the invoice is flat and a part round, the case exhibited being of the round variety, which has always been the most acceptable to the writer for reasons hitherto given. This excellent rhubarb, which really leaves nothing to be desired in regard to quality, is offered by Messrs. Reed & Co. at $1.10 currency, a price which though not exceptionally low for this grade in the present condition of the market, is quite as low as can ever be reasonably expected for a drug of such quality, and quite low enough to take away all legitimate inducement or excuse for buying lower grades for medical use.

The larger, or picul chest, was imported by the writer through the kind offices and skilful selection of his London correspondents, Messrs. Arthur S. Hill & Son. This also is unexceptionable rhubarb, and though imported at a higher cost, is possibly but little if at all better than the Reed & Co. chest. The members present are invited to a very close scrutiny of these two parcels of rhubarb, and to an independent judgment upon their respective merits.

BROOKLYN, August, 1872.

NOTE ON ACONITE ROOT.

BY EDWARD R. SQUIBB, M.D.

THERE is good reason to believe that the appreciation of the value of preparations of aconite root in therapeutics, and the increasing use of these medicines are hindered by the want of uniformity in quality of the root as met with in the markets, and the custom of pharmacists generally of buying by appearance, or what is still worse, buying in powder. The writer has been for some years past almost constantly in search of this drug of proper quality for medicinal use; and has been frequently out of it and its preparations through inability to find it in the markets of the seaport cities of this country, and has even failed to get it in London. Yet if quality be not considered, or not tested, there are few drugs more easily or more cheaply attainable at all times. From the large brown root, which rarely is, though often is called "English," to the small black root commonly known as "German," the markets are always abundantly supplied with root of various sizes and shades of color. The general appearance is almost always good, and the root clean and sound, and even on fracture, the substance of the root appears to be of fair quality. Upon testing, however, it will often be found that not more than four or five roots in ten have any medicinal activity, and these only in feeble degree. Occasionally parcels will be met with in which every root possesses the desired activity, at least in some notable degree. Thus it becomes necessary to decide upon some arbitrary standard of strength to govern the selection, and in the present state of the markets this must not be set too high, if anything like a uniform supply of fresh preparations is to be kept up. The arbitrary rule adopted by the writer many years ago, was not to buy any parcel from which six roots out of ten did not yield a fair degree of medicinal activity, and to get as much above this as possible. Within the past two years the quality in this market has somewhat improved, and now the arbitrary

rule has been changed, and eight roots out of ten from an ordinary handful sample is the standard. If pharmacists generally would apply some such rule we should soon have a market supplied with a much better and more uniform quality, and it is the first object of this note to urge pharmacists to a more careful discrimination, since upon this all uniformity and efficiency in medicinal use of the drug must be based. The root should never be bought in powder, because in the present state of pharmacy quantitative testing would not be applied, and because a proportion of even three or four good roots in ten gives to the powder an apparent activity which is deceptive when judged by qualitative testing.

The causes of this general bad quality of aconite root are, so far as this writer is concerned, unknown; yet two or three prominent causes may be reasonably inferred, and perhaps should be mentioned, in order that the reader may judge of their value.

One of the most probable causes of this condition of the market is that terrible screw of price from which it seems almost impossible to escape. The present ruling prices of aconite root by the bale in this market varies between fourteen and twenty cents per pound, according to the appearance. Now when it is remembered that this includes two or three profits or commissions, the freight and charges inseparable from a three thousand miles transit, to say nothing of the time, capital, and risk involved, it will be seen that the price realized by those who collect and dry the drug for the market, must be very small indeed, and totally insufficient to pay for the requisite knowledge, care, and skill, since two pounds or more of fresh root are required to yield one pound of dry. Hence in order to be sold at so low a price, it may be, and probably is, collected by ignorant women and children, who take it at any season of the year in which they can find it; leave as much of the stalk on the root as they can; dry it in the easiest and most rapid way possible, and then hurry it into the market. Occasionally parcels will be found within this range of prices, which are of good quality, but for anything like uniformity in good quality the common drug mar-

ket and its prices must be abandoned for special importations to order, at two or three times the common price, and under strict conditions as to quality.

From all this it would follow that if buyers would look carefully to quality so as to recognize it when they get it, and then be willing to pay for it in proportion to its intrinsic value, the markets would respond to their knowledge and true interests in the character of supplies. It is the aggregate buyer who makes the aggregate market, and if so the pharmacist has but himself to blame for the condition of his market. No reasonable probability should escape his thoughtful consideration, and his knowledge and skill should keep pace with the artistic refinements in cunning and deception.

Many parcels of aconite root seen within the past few years by their partial or entire tastelessness, lead directly to the suspicion that they have been partially or entirely exhausted, and afterward dried and put into the market. There is no doubting the identity of the root, and yet there is no season of the year, age of the plant, nor probable mode of drying, which would yield it totally insipid and devoid of activity, as more than half the roots of some parcels prove to be.

It is now generally believed that the growth of microscopic plants and animals destroys the active principles of many substances, and the published results with solutions of salts of atropia seem to establish the fact for belladonna. If this be true of aconite, then mouldiness would be a cause of inertness, as it is frequently seen mouldy on arriving here, though the appearance of mould soon disappears under the skilful hands of an energetic salesman.

Aconite is a prominent illustration of the general practical fact, that when the drug can be had of good uniform quality, and the preparations from it are made with care and skill, the alkaloid from it is not only a useless, but a dangerous refinement, and becomes through variation of species, or variation of process of manufacture, as deficient in uniformity as the root itself is in commerce.

Aconite leaf and its preparations are comparatively feeble, and the natural and accidental causes of want of uniformity

of strength are more numerous, and less susceptible of useful control. The leaf might, therefore, with advantage, be omitted from the Materia Medica.

It now only remains to be shown that there is a simple, practical, easy, and effectual way of testing aconite root by tasting it.

If a root be broken across, near the middle, and a piece the size of half a pin's head be bitten off from the edge of one of the fragments at the place of fracture; and if this piece be chewed between the front incisor teeth, in contact with the tip of the tongue, until it is converted into a pasty or liquid mass, and be then discharged from the mouth, and the parts with which it has been in contact be cleansed as thoroughly as possible by the natural flow of saliva which is produced, the testing process for the particular root in question is finished. If the root be inert, the fragment is nearly or quite tasteless, and no impression remains upon the tongue or lips after the parts are cleansed by the saliva. But if the root be a thoroughly good one, the taste is at once moderately bitter, this bitterness being in a great degree proportionate to the activity of the root.

The bitterness is, however, to a great extent lost when the mouth is cleansed, and there is then an interval of a minute or more of tastelessness. Soon, however, the peculiar and perfectly characteristic aconite impression comes gradually on, beginning with a sense of tingling, which soon becomes a pricking sensation, which passes into a local numbness, which once felt cannot be mistaken. This is not taste, but rather a paralysis of all sensation in the parts, and it is quite persistent, continuing from one to three hours, in proportion to the strength of the root and the quantity taken for the trial. It is not painful nor even annoying, nor is it hurtful when properly managed, but in using the test the virulently poisonous character of the drug should never be forgotten.

Both the taste and the aconite impression or effect will vary in intensity or degree in various roots, but no parcel of the root should be accepted, or be considered as officinal, in

which more than two or three roots in ten fail to give the aconite impression or numbness.

If a tasted root fails to give the impression within ten or fifteen minutes, its parts should be laid off by themselves upon the sample paper, and another root may be at once taken. But if the aconite impression be obtained, this must be allowed to disappear entirely before another root is tasted, and the fragments of the good root must be laid together on another part of the sample paper. Thus in testing a good sample of the root, not more than three or four pieces can be tried in any one day, and about three days will be required to determine the quality of a sample of good root. But the testing, of course, is not incompatible with the ordinary duties of the pharmacist, and therefore involve no loss of time. In practice the time mentioned as requisite to test a given sample is almost always exceeded, because in the routine of a busy day the subject is often forgotten for a time, so that but one or two pieces are tried in a day.

BROOKLYN, August, 1872.

SNEEZEWEED.

BY JOHN M. MAISCH.

AT the last meeting a letter dated Kosciusko, Miss., September 7th, 1871, and signed by J. M. Lewis, M.D., and G. W. Gallaway, M.D., was received by the Local Secretary, Mr. Wm. H. Crawford. A plant was inclosed, stated to be poisonous. The letter and plant were, by the Committee on Papers and Queries, referred to me for investigation and report. The letter is as follows:

KOSCIUSKO, MISS., September 7th, 1871.

WM. H. CRAWFORD,
Secretary, St. Louis, Mo.

DEAR SIR: Inclosed please find a specimen of what we call here "sneezeweed." This plant grows in great abundance through this part of the country.

It kills a great many horses in this country. Animals raised here seldom eat it, but stock brought here from Texas and the North are frequently killed by it. It acts on an animal something like strychnia on man. From this fact we are led to believe it contains an alkaloid similar to the one mentioned in action (strychnia). We use "sweet oil" for an antidote, and if given early it generally acts well.

We wish, gentlemen, you would investigate its properties, and give us a safe and sure antidote, if there is one, and perhaps the alkaloid, if it can be obtained, may be of service in medicine in the treatment of some nervous diseases.

This specimen was gathered this morning by the side of the street. It grows on poor as well as rich soil.

Let us have your report.

Respectfully yours,
J. M. LEWIS, M.D.,
G. W. GALLAWAY, M.D.

P.S.—It produces delirium in man if eaten, but in no instance death. It was eaten in the bread by one family here. This shows its poisonous effects after passing through the mill and being cooked. It was gathered with the wheat.

Respectfully,
G. and L.

Mr. Charles S. Brown, who last winter was a student at the Philadelphia College of Pharmacy, confirmed to me the reputed poisonous properties of sneezeweed, and Mr. John T. Buck, of Jackson, Miss, gave me some information respecting it, of which the following is the substance: The plant produces an herbaceous stem which dies in winter, the leaves reappearing in April, and the flowers from July till autumn; the latter are small, and have a purplish disk surrounded by the yellow rays. Both leaves and flowers are dangerous to stock, and the plant seems to be most active when in full bloom.

In February last Dr. J. M. Bigelow read a paper* before the Detroit Academy of Medicine, entitled, "American Helenicæ (Sneezeweeds)," in which he states, under *Helenium tenuifolium*, Nutt., "it is the plant referred to by Drs. Gallaway and Lewis, of Kosciusko, Miss.," and then quotes from letters received from both gentlemen, in which cases of pois-

* Detroit Review of Medicine and Pharmacy, May, 1872; American Journal of Pharmacy, July, 1872.

oning by sneezeweed are related, and the effects produced upon horses are detailed. Dr. Bigelow does not appear to have received a specimen of the plant from his correspondents, at least nothing is said of it in his paper. The plant, however, which the same gentlemen sent to this Association is not *H. tenuifolium*, Nutt., but *Helenium autumnale*, Lin., as will be seen by comparing the plant of Drs. Lewis and Gallaway with the following description of both plants, taken from Dr. Chapman's Flora of the Southern United States, p. 239:

"*H. autumnale*, Lin. Smooth, or minutely pubescent; leaves lanceolate or oblong, serrate, strongly decurrent; scales of the involucre linear, subulate; scales of the pappus ovate-lanceolate, denticulate, awn pointed.

"*H. tenuifolium*, Nutt. Smooth; stem slender, very leafy; leaves narrow, linear, entire; heads on long and slender peduncles; scales of the involucre subulate; scales of the pappus ovate, entire, abruptly awned; achenia villous."

The two plants are so dissimilar in aspect that they cannot be mistaken for each other; while the leaves of *H. autumnale* are from two to three times longer than broad, the length of the leaves of *H. tenuifolium* is about twenty to thirty times their width. Drs. Lewis and Gallaway's plant was also compared with specimens of the same species contained in the herbarium of the Philadelphia College of Pharmacy, with which it corresponded in every particular, except that the heads were rather smaller and the rays somewhat shorter. This difference may be accounted for by the locality from which it was collected, namely, from the side of a street. Farther north it is gathered from low grounds, moist meadows, &c., where it frequently attains the height of six or seven feet, and is quite an ornament to low thickets from its medium-sized flower-heads, with the drooping bright yellow rays. The plant is frequent throughout the United States, except in New England, and though its acrid properties have been well known for a long time, I cannot find any allusion to or imputation of poisonous properties. Even Dr. Porcher,* who has collected

* Resources of the Southern Fields and Forests. Charleston, S. C., 1869.

a great deal of information from the different publications and through private correspondence, knows nothing of such deleterious effects as described above.

When the leaves are chewed slowly and gradually an acrid taste is developed, and an itching sensation is experienced for some length of time. It is not unlikely that the plant may contain an acrid resin, and that plants growing in southern localities contain a larger proportion thereof than if grown farther north, and acting on that account more powerfully as an acrid poison.

An analysis of the plant could not yet be made, owing to the lateness of the season after the Association adjourned last year, and the late flowering period of the plant. Mr. Charles S. Brown has, however, collected, near Jackson, Miss., a quantity of sneezeweed with which some experiments will be instituted during the coming winter. It appeared to be more satisfactory to obtain the plant for this purpose from a section where its poisonous properties have been observed, than to use a plant grown farther north, where scarcely anything except its sternutatory properties are known. If the Association will continue to me for another year that portion of the query relating to the poisonous principle of sneezeweed, I shall endeavor to answer it.

NOTE ON ALOES.

BY EDWARD R. SQUIBB, M.D.

A PRETTY close examination and cross-examination of the aloes of the commercial market, during the past few years, has led the writer to the inference that the differences in it are due quite as much to difference in mode of preparation as to difference in species, climate, &c. Comparing the varieties of the market with the uses and effects of the drug, without too much dependence upon the books, it will be found that there are two distinct classes.

Between these classes there seems to be a pretty sharp line of difference, while the individuals of each class shade off into each other without any well-marked boundary line. The prominent, and perhaps characteristic difference between the two classes of the drug is, that in their therapeutic effect one is comparatively mild and gentle, and unirritating, with tonic and aromatic qualities, while the other is more harsh and drastic, producing more irritation, and much more liable to overaction. This difference adapts the individuals of the first class better to use in human beings, and renders a selection for the mildest among the individuals very desirable, if not necessary, in the delicate organization of women, in the treatment of whose diseases this drug is so important and so valuable. The individuals of the second class are better adapted to the medication of animals, and by right should not be used for mankind.

Carrying this therapeutic distinction into the drug market, and applying it closely, the two classes will be easily made out by a marked difference in the sensible properties. The one class is of a lighter color, generally soft, and often semi-fluid in consistence, and varying in both color and consistence with length of exposure to the air, and with temperature. The odor is entirely different both in quality and degree, being aromatic in quality and feeble in degree. When strong, and approaching to the character of a stench, as it not unfrequently does, this may arise from decomposing animal matter, such as goat-skin, fragments of which are often found in the aloes. From the appearance of these fragments of skin, and fragments of the aloe plants, and from the presence of uncoagulated albumen, it seems almost certain that the individuals of this class have not been subjected to artificial heating, but that the exuded juice is dried in the sun,—perhaps in goat-skins, which line a shallow excavation made in the sand at the stump of the plant, whose leaves may have been cut off near the ground and laid with their exuding, cut ends over the goat-skin.

The second or more drastic class affords equal evidence of being prepared by artificial heat, and the depth of color to

some extent indicates the amount and quality of the heat used. Most, but not all, the varieties of this class give evidence of being made by decoction of the plant, rather than by evaporation of juices obtained by exudation from the fresh plant.

All the individuals of the first class are known in the market as Socotrine aloes, or occasionally as East India aloes. While the second class has no generic or class name, but embraces the individual varieties which come from the West India islands, and from Eastern and Southern Africa. This group is well represented by the commercial titles Barbadoes aloes, Cape aloes, &c. And each of the two names mentioned covers, in the market, subvarieties produced neither in Barbadoes nor on the Cape of Good Hope.

While some of the finer varieties of this class are occasionally met with which are very aromatic and very nice, giving evidence of careful preparation, this is so rare an exception that it does not modify the judgment of the writer to the effect that the whole class should be excluded from the materia medica and pharmacy which is specially applicable to mankind, and be confined to the larger uses of veterinary practice where it has special and very important advantages over the other class.

The so-called Socotrine aloes varies quite as much, though all under one name, as the other class with its various names, but of late years there is a growing tendency in the market to separate it into two subvarieties by difference in color, so that it is now not uncommon to hear of Red Socotrine aloes, and Yellow Socotrine aloes, the red variety being justly held in the highest estimation. A curious observation often verified by the writer is that the red variety is always yellow at first, and gradually changes to red through intermediate shades, by age and exposure to the air; and that continued exposure tends constantly to deepen the red color into garnet at first, and finally into reddish-black, when the edges are no longer translucent. The yellow subvariety, however, does not become red by age and air contact, but only deepens, as it dries and becomes brittle, into a yellowish liver color, or yellowish-brown, with very little of the red tinge, or none at

all. This yellow subvariety it is in which the fetid, stinking odor is occasionally met with, and as both subvarieties are of the same yellow color at one early stage, even of their drug market career, and at this stage distinguishable chiefly by odor and visible impurities, the question arises as to whether both are not from the same source, and the same process of preparation, the parcels which become red being well and carefully prepared, while the parcels which do not become red, may, from containing putrescible matter, undergo a fermentation which may destroy the elements upon which the red color depends, and other more valuable qualities, as the aroma, &c.

The fetid odor of this subvariety is always diminished by age, and is altogether lost in the powder made from it.

As a general rule this Socotrine aloes is much higher in price than any of the grades of aloes by decoction, and loses much more largely by drying. All except the finer parcels of the red variety require to be melted, diluted, and strained before they are fit for medical use, and the loss by straining varies very much, say from 5 to 10 per cent. It is curious to notice how small a proportion of these impurities is visible by inspection of the aloes beforehand. The average loss from straining and drying is perhaps 15 to 18 per cent., but has, in the writer's experience, once reached 27 per cent. upon a large lot. The substances separated by straining through a sieve of sixty meshes to the linear inch, are chiefly pieces of goat-skin, shreds of the aloe plant, sticks, small stones, and hair. A specimen of these strainings is presented herewith. Exceptionably entire goat-skins are found in the parcels, and one is here shown tied up at the openings, showing how the juice is transported to the packing places. One outlet—the neck—appears to have been left open, as in the transportation of grape-juice from the wine-presses, through which to pour out the contents. After being emptied—for it was found empty—this skin appears to have been dropped into the package of aloes, possibly by some child, as the skin is smaller than others which have been met with. From another parcel a rude knife of very peculiar shape and construction was strained. This knife, as shown, was probably used to cut off

or incise the leaves of the plant, though it does not appear to be particularly well adapted to such purpose for civilized hands. The above figures are given from an experience of straining, drying, and powdering more than twenty-two thousand pounds of Socotrine aloes.

The melting, straining, and drying of the aloes by artificial heat is very injurious to it, of course, as in proportion to the want of skill and care with which this is done, it degrades the aloes to the character of the lower grades made by decoction. But when the question is reduced down to a choice between this injury done and the common practice of drying on steam tables, without straining, and thus powdering up goat-skin, stones, sticks, &c., there can be no doubt as to which course is best for the interests of medicine. The finer packages of Red Socotrine aloes, which always command a high price but are slow of sale, contain so little of impurity which can be separated by a No. 60 sieve, that as a rule it is better to use it without this hurtful process. Spread thinly out upon shallow trays of tinned iron, the advisability of straining can be approximately and usefully judged. And if this be done in cold weather when the aloes does not run, and when the air is comparatively dry, a couple of months exposure, at ordinary temperatures, is sufficient to dry the aloes well, retaining its natural aroma to a highly desirable and useful extent. It is very much to be feared that the use of such aloes in the officinal formulas is very much undervalued, since the Socotrine aloes which has passed through the writer's hands within the past ten years has been very nearly all used by successive crops of quack pill men, who must have good drugs while getting up the reputation of their nostrums, though this may not be the time when the money is made. Pharmacists, as a class, use very few such drugs, because not knowing their value they will not pay the price.

A case of very good Red Socotrine aloes imported by the writer from Messrs. Arthur S. Hill & Son, of London, is shown herewith, and will be found in the exhibition-room of the Association during the meeting. The members are invited to make a critical examination of it. This case cost £19 10*s*.

per cwt. of 112 lbs. in London. That is to say, about 83 cents gold without freight, duty, or any other element of cost. The currency cost price to the writer cannot be far from $1.20 per pound. It is drier than usual, though not cleaner than the best of its kind, and will not lose in drying more than about 10 per cent., while it does not need straining. Add 10 per cent. to $1.20, and the cost will stand about $1.32 currency. A very high price, but the cost well represented in intrinsic value.

This case, however, is exceptionably costly, since five cases had by the writer from Messrs. Dix & Morris, of New York, next previous to this shipment, were of nearly as good quality, and quite as clean though not quite so dry, at 75 cents per pound currency.

BROOKLYN, August, 1872.

TENNESSEE OPIUM.

BY BENJ. LILLARD, NASHVILLE.

CONSIDERABLE interest has been manifested during the last few years in the cultivation of the poppy, for opium, near Nashville.

A small quantity of the imported seed of the white poppy was planted by Dr. Pitts in the spring of 1871, and the seed thus obtained were used exclusively this year with very fine success, the plants being larger and more vigorous, and the capsules from two to ten times as large as those from the imported seed.

The seeds are planted in drills, in soil adapted to cotton and well prepared, about the time of sowing oats, this year the last of February. The young plants are thinned out and left from four to six inches apart, and cultivated like cotton.

The harvesting commences a few days after the flower drops off, occurring this season in June. Dr. Pitts cuts the

capsule horizontally on one side early in the morning, with a three-bladed knife, arranged similar to a cupping-lancet, great care being required not to perforate through into the interior, when a cream colored liquid exudes, coagulating rapidly to a pale red, which in a few hours becomes a rich brown mass. It is carefully scraped off early the next morning, and placed in the sun to dry. The process is completed by cutting the other side of the capsule which is treated the same way. He estimates his yield this season at from thirty to fifty pounds per acre.

More extensive preparations are being made by him and others for a larger crop next year, and as our climate and soil seem well adapted, if the season should prove favorable we may expect very satisfactory results.

A sample of opium prepared this summer is presented for your examination. It has the peculiar narcotic odor and bitter taste, and presents a smooth tenacious mass of a dark brown color. One hundred grains, when dried, yielded eighty-three of powder, and upon examination eleven of insoluble matter, mostly clay and sand, and ten of alkaloids.

A sample of the powder and of laudanum prepared from the moist opium is also presented, and will be found to possess the usual characteristics.

ON OIL OF ERIGERON.

BY EUGENE J. WEEKS, JACKSON, MICH.

QUERY 15.—What is the best test of purity for Oleum Erigerontis Canadensis, and what oils are used to adulterate it?

IT is generally conceded that there is no one test by which the absolute purity of any volatile oil can be determined. The writer is therefore obliged to step beyond the limitation of the query by giving a plurality of tests to establish the identity of the oil in question.

Nine samples under examination, obtained promiscuously from different wholesale houses in the country, furnished but four strictly pure oils. The adulterated oils differed very materially in appearance from the pure, possessing a very dark red color in distinction to the pale straw color of the pure commercial oil, and being quite viscid instead of a limpid fluid.

The adulterant found in each of the impure oils was fixed oil. Should alcohol be suspected, the most available test would be the acetate of potassa test recommended by J. M. Maisch, Proceedings American Pharmaceutical Association, 1858, page 355.

In case of an adulteration with non-oxygenated oils, the nitroprusside of copper test of Heppe, noted in the same article would be recommended. The writer, however, failed to obtain any indication of the presence of any of these adulterants, and therefore gives the reactions with the most prominent tests for fixed oils alone.

1st. Pure oil of erigeron, when dropped upon fine white filtering-paper, leaves only a very faint yellow stain at the expiration of three hours; whereas, all of the samples of impure oil give a very dark greasy stain under the same circumstances.

2d. Liquor potassæ, when agitated with an equal volume of the pure oil, and then allowed to stand a few hours, separates into two clear layers, imparting to the oil a red color. But when the impure oils are subjected to the same test they form a partial emulsion or saponaceous mixture, which settles ultimately into three layers, the intermediate one containing the fixed oil combined with the alkali.

3d. Officinal nitric acid mixed with an equal volume of pure oil upon a watchglass at first unites to a uniform brown-colored mixture, possessing the peculiar odor of fresh-cut hay, which at the expiration of twelve hours concretes upon the outer edge a dark brown resinous substance surrounding a clear limpid fluid in the centre, covered with a thin white film. When an impure oil is subjected to this test the mixture formed is of a black color devoid of the peculiar hay

odor, and concretes to a black substance surrounding the fluid portion, which is covered with a brown film.

4th. Officinal sulphuric acid, when mixed with an equal volume of oil of erigeron, in all cases forms a black mixture immediately. The impure oil solidifies completely at the expiration of twelve hours, while the pure oil concretes only upon the outer edge in the same length of time.

ON COMMERCIAL CREASOTE.

BY ENNO SANDER.

QUERY 31.—Does Wood Creasote exist in the American market? If not, what is supplied instead?

I DEEPLY regret that many causes have prevented me from devoting sufficient time to the thorough investigation of the above question.

I had obtained four specimens, all labelled "creasote;" none had the requirement of pure creasote, and was colorless. They had all more or less of a deep yellowish tint, one a little reddish. Three of these samples were sent to me by my friend Prof. Maisch, and were labelled:

1. Merck's Creasote.
2. Creasote from Bullock & Crenshaw.
3. Creasote, from beechwood tar, from Bullock & Crenshaw.

No. 4 was from G. Mallinckrodt & Co., and was marked "beechwood creasote."

It being out of question to devote any time to experiments, I subjected the specimens to the test of Thomas Morson, who states in a paper on the substitution of creasote by carbolic or phenic acid, that the former is insoluble in glycerin, while the latter dissolves in it in all proportions.

The specimens 1, 2, and 3 were entirely soluble in glycerin, but No. 4 separated entirely from it at a temperature of 65° F., after being well shaken with it.

I then made further experiments by mixing No. 4 with different proportions of 1, 2, and 3, and also with similar quantities of carbolic acid; all mixtures were subjected to the glycerin test and behaved towards it remarkably alike, to wit: all three specimens, and also carbolic acid, would yield clear solutions with No. 4 in all proportions, but these mixtures would not dissolve in glycerin, unless at least half a volume was mixed with one volune of No. 4.

Now if Morson's test is correct, No. 4, or the creasote of G. Mallinckrodt & Co., was the only genuine article, while the others were according to their reaction not creasote but carbolic acid.

If the Association should not be satisfied, I request a continuance of the question until next meeting.

ON THE PRODUCTION OF MILK SUGAR IN THE UNITED STATES.

BY JOSEPH L. LEMBERGER, OF LEBANON, PA.

QUERY 12.—Has any attention been given to the preparation of Milk Sugar (Lactin) in the cheese districts of the United States? Can the production be made remunerative?

IN prosecuting my inquiries on this subject, I find more or less difference of opinion, and have settled down to the fact, that the manufacture of milk sugar cannot be made remunerative in the United States.

I know of no place in this country where milk sugar is now manufactured, but am informed that attempts have been frequently made and were found not to pay. From an analysis of milk taken from a communication by C. W. Street, Esq., who has charge of a cheese factory at Elizabeth Farms, Lan-

caster Co., Pa., I find the following given composition of 1000 parts:

Water,	873.
Butter,	80.
Casein,	48.2
Milk Sugar,	43.9
Phosphate of Lime,	2.31
Magnesia,	.42
Iron,	.47
Chloride of Potassium,	1.04
Sodium and Soda,	.66
	1000.00

No two analyses of milk correspond exactly, from the fact doubtless, that the article is very readily affected by the fodder with which the cows are fed, as well as by temperature of atmosphere, &c.

The above analysis is given with a view of showing the proportion of milk sugar, and to inform the Association that in separating the casein in cheese-making, 15 parts of the 43.9 of milk sugar go with it into cheese.

Manufacturers turn the whey into the stable, and find it more profitable as an article of nutriment for their stock, especially for calves, than it would be were it concentrated, crystallized, and purified as lactin.

So long, therefore, as the manufacturers of cheese can get good prices for the calves they raise on milk whey, it is not likely that the production of milk sugar can be made remunerative.

ON CHINESE BLISTERING BUGS.

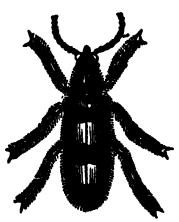
BY JOHN M. MAISCH.

At the meeting of the American Pharmaceutical Association in 1871, it was stated in the Report on the Drug Market that twenty cases of blistering flies had been imported from China, and, although of a brown color and not as good-look-

ing as the European flies, proved to possess equal vesicating powers and went into consumption. It was interesting to ascertain of what species these bugs consist; and soon after the meeting adjourned, the writer endeavored to procure some of the commercial article, but was unable to obtain any; the whole amount that had been imported having apparently been consumed. Subsequently Dr. Squibb kindly sent me a specimen from his private collection, which proved to be the Mylabris cichorii of Fabricius. My thanks are especially due to Messrs. McKesson & Robbins, who were kind enough to import a pound for me from London, to enable me to make the necessary experiments, with the view to ascertain the amount of cantharidin contained therein.

The genus Mylabris comprises a large number of species, many of which were described in a monograph by M. C. Cooke, M.A., on Vesicating Insects, which was published in vol. ii, third series, of *Pharmaceutical Journal and Transactions*, and from which the following descriptions and remarks are copied:

Chicory Mylabris or Telini Fly, *Mylabris cichorii*, Fabr.; villous, elytra black, with two spots and two ochraceous bands: Fabr., S. El. ii, p. 81; Oliv., 47, p. 7, t. 1, f. 1; Meloë cichorii, Linn. Syst., p. 680; Panz. Ins., 31, t. 18; Steph. Med. Zool., t. 26, f. 5; Billb. Mon., t. 1, f. 8, 9; De Geer's Insecta, iv, t. 13, f. 2; Pallas, Ins. Ross, t. E. f. 7; Moq.-Tand., Med. Zool., f. 32; Brandt and Ratzeb., ii, t. 18, f. 17.



This species is the best known, and, according to Moquin-Tandon, is employed in Italy, Greece, Egypt, &c., as far as China. It is found in several of the warm parts of Europe as well as in Asia, and resides on the flowers of the wild chicory and other composite plants in Asia. Attention was directed to this insect as a native of India by Captain Hardwicke in 1799. The following is his detailed description:* Antennæ moniliform, short, consisting of eleven articulations, increas-

* Asiatic Researches, vol. v, 1799, pp. 213–215.

ing in size from the second to the apex; the first nearly as long as the last, each a little thicker upwards than at the base, and truncated, or as if cut off, the last excepted, which is egg-form. Palpi four, inequalled, clubbed, the posterior pair of three, and the anterior of two articulations. Maxillæ or jaws four, the exterior horny, slightly curved inwards, three-toothed; the two inferior teeth very small; the exterior pair compressed and brush-like. Head gibbous; eyes prominent, large, reticulated; labium or upper lip hard, emarginated. Thorax convex above, broader towards the abdomen, and encompassed by a narrow marginal line. Elytra crustaceous, the length of the abdomen, except in flies pregnant with eggs, when they are shorter by one ring; convex above, concave beneath; yellow, with three transverse, black, irregular, undulated bands, the one at the apex broadest, and that at the base dividing the yellow longitudinally into two spots; porcated or ridged; the ridges longitudinal and parallel to the suture; in number, three equal, one unequal, the ridges not very prominent. Alæ or wings membranous, a little exceeding the elytra in length, and the ends folded under. The tarsi of the two first pairs of feet consist of five pairs of articulations, and of the posterior pair four only. Every part of the insect, excepting the wings and elytra, is black, oily to the touch, and covered more or less with dense hairs; a few scattered hairs are also evident on the elytra. All the crustaceous parts of the insect are pitted minutely. It is about the bigness of *Meloe proscarabæus* of Linn., and a full-grown one, when dry and fit for use, is to the vesicatorius in weight as four and a half to one.

They come into season with the periodical rains, and are found from the month of July to the end of October, feeding on the flowers of cucurbitaceous plants, but more frequently on the species of *Cucumis*, called by the natives "Turiey," with a cylindrical, smooth ten-angled fruit. Also on the "Raamturiey," or *Hibiscus esculentus; Hibiscus Rosa-sinensis;* and in jungles, where these plants are not to be found, they are to be met with on two or more species of *Sida*, which flourish in that season. In the failure of flowers they will feed on the

leaves of all these plants except the Turiey, which I have not observed them eat. They are great devourers, and will feed as freely in confinement as at large. In September they are full of eggs, which seems to be the best state in which they can be taken for medical use, at that time abounding more abundantly in an acrid yellow oil, in which probably resides their most active property. This fluid seems the animal's means of rendering itself obnoxious to others; for on the moment of applying the hand to seize it, it ejects a large globule from the knee-joint of every leg, and this, if suffered to dry on the fingers, soon produces an uncommon tingling in the part, and sometimes a blister. This is the only inconvenience attending the catching of them, for they make no resistance; on the contrary, they draw in the head towards the breast as soon as touched, and endeavor to throw themselves off the plant they are found on. The female produces about 150 eggs, a little smaller than a caraway seed, white, and oblong oval. Their flight from plant to plant is slow, heavy, and with a loud humming noise, the body hanging almost perpendicularly to the wings. They vary in the color of the elytra from an orange red to a bright yellow; but I do not find this variety constitutes any difference in sex. The natives of this part of the country know the insects by the name "Tel-eene," expressive of its oily nature. It is stated by Captain Hardwicke to be found in all parts of Bengal, Behar, and Oude.

In India this insect is known as the Telini fly, and the following synonyms have been traced by Mr. Moodeen Sheriff: Zararihul-hind or Zararihe-hindi of the Arabs; Dabane-hindi of the Persian; Telni, or Telni-makkhi of the Hindus; Badbo-ki-zirangi, or Zîrangi of the Deccan; Pinsttarini of the Tamuls, and Blishtering-igelu of the Telugus. These names are probably applied to other species as well as the present, employed for like purposes.

There is an apparent discrepancy between the different descriptions which have been given of this fly, occasioned by the fact that some have regarded the ground color of the elytra as black, with ochraceous yellow bands and spots;

others treat the ochraceous yellow as the ground color with three black heads. O'Shaughnessy states that the Telini fly is common in the neighborhood of Dacca, in the Hydrabad country, and numerous other localities. If procured before the mites have commenced its destruction, it yields on an average one-third more of cantharidin than the Spanish fly of the European shops. "Some prejudice," he says, "exists against the article on account of its alleged excessive severity of action. This is solely owing to the presence of a greater quantity of cantharidin than that contained in the common fly. Diluting the tincture, and adding to the proportion of lard and wax in the plaster and ointment, perfectly assimilate the action of the indigenous and the imported insects."

Dr. Bidie* seems to doubt whether the insect found in the Mysore country was the same as Captain Hardwicke's, as will be seen by his remarks: "There is a species of *Mylabris*, very similar to Hardwicke's, found in abundance in the Mysore country, of which the following are the characters: head gibbous; eyes large, prominent; antennæ with eleven joints, gradually ending in a club, and eleventh joint large and ovoid; thorax convex above, broader towards the abdomen, somewhat hairy; elytra crustaceous, about the length of the abdomen, convex above, concave below, yellow, with three transverse, black, irregular and undulating bands, that at the base dividing the yellow into two spots; wings thin, brownish, membranous, longer than the elytra, tips folded under; first two pairs of tarsi five joints each, last pair four only; last joint in all furnished with claws. When touched the insect ejects from the joints of its legs large drops of a yellow oily fluid of an acrid nature. They are very destructive to all the species of Hibiscus, the Roses, &c. When gathered, they should be killed by being plunged into vinegar, and then dried in the sun. The month of September is said to be the best time for collecting them, and they should be stored in close-stoppered bottles, with a little camphor to preserve them from the attacks of insects." There is no good ground for supposing that there is any difference between the Mysore

* Bidie, in Madras Quart. Journ. Med. Sc., vol. v, p. 261, 1862.

and Bengal insect. In the absence of specimens it is not easy to appreciate the doubts of local entomologists on closely allied forms. In both instances it seems that *M. cichorii* and *M. phalerata* are confounded together, the latter being specially fond of such malvaceous plants as the species of *Sida* and *Hibiscus*.

Dr. Fleming says that this insect abounds in every part of Bengal, Bahar, and Oude. In the rainy season, during which it is in its most perfect state, it is found feeding on the flowers of the various species of *Hibiscus* and *Sida*, and is readily distinguished by the three transverse undulated black bands on its yellow elytra, which constitute its specific character. The flies should be gathered in the morning or evening, and immediately killed by exposing them to the steam of boiling vinegar. They should then be thoroughly dried by the heat of the sun, and afterwards put into bottles to preserve them from humidity.

Sida Mylabris, *Mylabris phalerata*, Pall.; villous, black, elytra black, with three broad undulating rufescent bands; the first arising from two spots: Pall. Icon., p. 78, t. E., f. 3b; *Mylabris sidæ*, Fabr. S. El., ii, p. 83; Brandt and Ratzb., ii, t. 18, f. 18; Billb. Mon., t. 1, f. 1–5. Head black, punctulate, villous; antennæ black, brow impressed; thorax longer than broad, black, villous, punctate, transversely impressed, the impression in the middle punctiform, the other at the base broader; scutellum small, black, punctate; elytra three times as long as broad, punctate, black, with two undulating bands and two rufescent spots at the base; the spot by the scutellum rounded, that at the margin oblong. Wings hyaline, with tawny veins. Breast and abdomen black, villous, punctate. Feet black, villous. Found on species of *Sida*, *Hibiscus*, &c.

This species is a native of the Cape of Good Hope, China, &c., and forms a portion of the commercial article exported

from China. According to Soubeiran, it is largely employed in Germany, where it is imported by English merchants. The bands are reddish-brown, and *not* ochraceous-yellow, as in the chicory *mylabris*. It is figured by Pallas, as cited above, and in Billberg's "Monograph," t. 1, f. 1–5. The greater portion of the "Chinese fly" imported into this country has consisted of the present species, which is generally much larger than *M. cichorii*. It seems probable that the remarks of Indian observers, in so far as they refer to the Telini fly, feeding on *Sida* and *Hibiscus*, belong to this species.

FOUR-SPOTTED MYLABRIS, *M. melanura*, Pall.; villous, black, elytra reddish-brown, or yellowish, with four spots, black at the apex, the inner margin of apical band sinuated. Pall. Ic. p. 86. *M. quadripunctata*, Tausch. Mem. Mosc., p. 133, t. x, 2; Bilb. Mon., t. iii, f. 7–12. *M. cichorii*, Oliv., c. iii, p. 7, t. ii, f. 13. Head black, villous, punctate. Thorax scarcely longer than broad, black, villous, punctate. Scutellum black, villous. Elytra three times as long as broad, black, villous, punctate, with rudimentary elevated lines; subvillous, yellowish, or reddish-brown, with four spots; two anterior, one at the suture, the other at the margin, and two posterior, behind the middle, one at the suture rounded, the other at the suture subquadrate; the apical band black with the anterior margin sinuate. Almost the size of M. variabilis.

It is a native of Spain and Russia. According to the Pharmacopœia of India, it extends also to that country, being cited as one of the indigenous species. It is figured in Billberg's "Monograph," t. iii, f. 7, 8, as well as in the "Moscow Memoirs," and by Olivier, as cited above.

This species can be easily distinguished from the foregoing by the four spots on the elytra. It is smaller than the *Sida Mylabris*, or the majority of the *Chicory Mylabris*, and would seem to be less common than either, since it is rare to find a specimen mixed with the commercial "Chinese fly."

It was thought proper to copy the above *in extenso* from M. Cooke's paper, because, as far as the writer's knowledge reaches, there is no work readily accessible to our pharmacists

giving a sufficient description and history of the Chinese blistering bug. In addition to the above, the following, taken from the Pharmacopœia of India, may well deserve a place.

MYLABRIS CICHORII, *Fabr.*, Telini fly.

Habitat.—Southern Europe, extending from Italy through Greece and Egypt to China. It is of common occurrence throughout India.

Officinal Part.—The dried insect (*Mylabris, Telini fly*). It has the following characters: About an inch in length and a third of an inch broad; the elytra of an obscure yellow, with three large somewhat zigzag transverse bands. The first band is interrupted and sometimes reduced to three or four spots. Active principle, *cantharidin.*

Medical Properties and Uses.—The same as Cantharis vesicatoria, for which it affords a complete substitute as a vesicant. As an internal remedy it should not be substituted for the tincture of cantharides, as the strength and operation of the latter is well ascertained, which is not the case with our present article. It is regarded as more powerful than the European article.

The same authority also mentions a number of other East India blistering bugs of the genera *Meloe*, *Lytta*, *Mylabris*, and *Epicauta;* but, it continues, with *M. cichorii* existing plentifully in most parts of India, the necessity of increasing the number of these vesicating agents is lessened.

The Chinese bugs, which I received from Messrs. McKesson & Robbins, consist mainly of the *M. cichorii*, intermixed, however, with a considerable portion of *M. phalerata*, the latter perhaps not exceeding one-sixth of the whole weight, and readily distinguished by their much larger size, notwithstanding the similarity in the banded appearance of the elytra of both species. If ochraceous-yellow is taken to be the ground color of the elytra of *M. cichorii*, the relative width of the three black bands is as follows: the one at the apex is the broadest, next in width is the one just above the middle, leaving the one above the base the narrowest. This latter band in some specimens is sometimes interrupted, leaving on each side of the suture an undulated semilunar figure, and

occasionally merely a spot. In other specimens which appear to me to belong to the same species, the second band is removed to the centre, and the third one quite to the base, so that there are but two broad yellow bands left, against three of the same color in the typical form. In the cabinet of the Philadelphia College of Pharmacy is a specimen marked *Mylabris cichorii, female*, in which the number of black bands is reduced to two, an apical and a basal one, the latter usually with two small yellow spots, and the yellow portion of the elytra occasionally with quite a small black dot on each side of the suture.

In *M. phalerata* the black color predominates on the elytra, which are marked by two undulated bands, one just above, the other below the middle, both being of a brownish-yellow color, of a deeper shade than in *M. cichorii;* at the base and near the suture are two nearly circular spots of the same brownish-yellow, and two smaller ones on the lateral edges near the base, the basal spots rarely becoming larger and confluent at the suture with the lower band. The transverse impression on the thorax is pretty large, and the scutellum is punctate, but not hairy. In *M. cichorii* the impression on the thorax is smaller, and has scarcely a transverse direction, and the scutellum is often covered with hairs.

The commercial article appears to be always a mixture of these two species (with occasionally a few individuals of other species), as has been pointed out by M. Cooke above; the relative proportion of the two species must, therefore, considerably influence the appearance of the commercial Chinese blistering flies.

Cantharidin was discovered in 1810 by Robiquet* in Spanish flies (*Lytta vesicatoria*, Fabr.). Bretonneau† isolated the same principle from the Chinese blistering flies about the year 1828. The process used for many years for the preparation of this principle was the one suggested by Robiquet, in which the aqueous extract of the powdered bugs is exhausted

* Annales de Chimie, xlviii, 230.

† Journal de Pharmacie et de Chimie, 1828, 67.

by hot alcohol, the solution evaporated to dryness, the residue treated with warm ether, the ethereal solution evaporated spontaneously, and some yellow matter removed by washing the crystals with cold alcohol. This process is based upon the observation made by Robiquet and other investigators, that cantharidin, when pure, is insoluble in cold and hot water, but taken up by this menstruum directly from cantharides in consequence of the presence therein of a yellow matter which renders this principle soluble in water. Ed. Rennard* has recently denied the correctness of this statement, he finding that cold water dissolves 0.02, and boiling water between 0.290 and 0.297 per cent. of pure cantharidin; the same author also found that this principle volatilizes with the vapors of boiling water, alcohol, and even chloroform.

Thierry† used spirit of ether or alcohol of specific gravity 85 for exhausting the cantharides, distilled the ether and the alcohol, removed the oil, and obtained from the aqueous residue the cantharidin by crystallization and subsequent purification.

In 1851 Professor Procter observing that chloroform is a good solvent for cantharidin, proved‡ the practicability of obtaining it by this menstruum directly from different blistering bugs. This process was improved by Mortreux§ in 1864, by treating the residue left after the evaporation of chloroform (or if ether had been used, after the evaporation of this solvent) with bisulphide of carbon to dissolve the fat, and recrystallizing from hot alcohol. A. Fumouze‖ corroborates this statement, using for the recrystallization of the cantharidin, chloroform.

Bluhm and Dragendorff¶ state that a portion of the can-

* Das wirksame Princip des wässrigen Destillates der Canthariden. N. Jahrbuch für Pharmacie, 1872, July 22.

† Journal de Pharmacie et de Chimie, xxi. 41.

‡ American Journal of Pharmacy, 1851, p. 124.

§ Journal de Pharmacie et de Chimie, 1864, p. 33. Will's Jahresbericht, 1864, p. 646.

‖ Journ. de Pharm. et de Chim., 1867, 161. Thèse de Pharmacie: De la cantharide officinale.

¶ Pharmaceutische Zeitschrift für Russland, 1865, 160.

tharidin is contained in cantharides in a combination in which it is not dissolved by alcohol, ether, or chloroform; in order to obtain the whole amount of this principle, they recommend to mix the powdered cantharides with water and calcined magnesia, exsiccate the mixture, and treat the dry mass with dilute sulphuric acid in slight excess, when the cantharidin may be extracted by solvents; or the acidulated mass is again exsiccated and then exhausted with ether or chloroform. Rennard* improves on this by saturating the mixture obtained after exsiccation with magnesia, with chloroform, and then supersaturating with sulphuric acid; the chloroform prevents the crystallization of the liberated cantharidin, which is for this reason dissolved by a much smaller quantity of ether.

The above contains nearly all the scientific literature on the preparation of cantharidin, and all the processes which may lay claim to at least approximate accuracy in their results. In experimenting with the Chinese flies, various questions that presented themselves, could not be solved in time for the present meeting; among them an inquiry into the usefulness of petroleum-benzin in the preparation of cantharidin, and also the estimation of that quantity of this principle which according to Bluhm and Dragendorff is not taken up from the blistering bugs by the usual solvents.

In regard to the quantity of cantharidin obtainable, I can find no earlier researches than those made by William R. Warner,† who employed Robiquet's process mentioned above for determining its quantity, and obtained from *Lytta vesicatoria* 0.41, from *Lytta vittata* 0.40, and from *Mylabris cichorii* 0.43 per cent. of cantharidin. Mortreux‡ gives the average percentage of cantharidin in good cantharides as 0.5 per cent., estimated by his process. According to Fumouze's experiments, cantharides collected in 1866 in different parts of Europe, yielded 0.275, 0.435, 0.48, 0.48, and 0.50 per cent. of this principle, while three samples one year old yielded but 0.17, 0.215, 0.375 per cent., and the worm-dust separated from

* Loc. cit. † American Journal of Pharmacy, 1856, p. 193. ‡ Loc. cit.

the next to the last sample 0.425 per cent., or double the quantity obtained from the cantharides from which the dust had been sifted.

Bluhm and Dragendorff found in commercial cantharides only 0.264 per cent. of cantharidin isolated by their process mentioned above; in *Mylabris quatuordecim-pustulata*, however, 0.486 per cent. Rennard separated from cantharides of unknown age, 0.38 and 0.431 per cent.; from cantharides one year old, collected near Heidelberg, 0.439 per cent., and from a sample eight months old, collected near Pultawa, 0.57 per cent. of cantharidin.

Fumouze's estimation of the value of the hard and soft parts of cantharides deserve mention yet; he found in the former 0.118, in the latter 0.778 per cent., and in the whole bugs 0.415 of cantharidin.

It appears from these essays that the amount of cantharidin which should be contained in cantharides, ought not to be less than two-fifths of one per cent., and might probably be placed at a somewhat higher figure. It also appears probable that the cantharides lose in strength by age; but it seems likely that in all cases cited above, the bugs were freed as much as possible from the worm-dust which Fumouze has shown to be rich in cantharidin, and since the mites destroy only the soft parts which contain a large amount of the active principle, its decrease in the remaining portions of the bugs is easily accounted for.

Regarding the comparative strength of the Chinese blistering bugs, which by O'Shaughnessy is placed at one-third, by Warner only at one-twentieth above the officinal cantharides, these discrepancies are easily accounted for, since the statement of the former doubtless refers to the recently collected mylabris, while the experiments of the latter were made with commercial bugs of uncertain age, and probably separated from the worm-dust. I find, however, no notice of any analysis made by O'Shaughnessy, and it is possible that his statement is based upon the epispastic properties of the bugs in question.

In estimating the amount of cantharidin in the commercial Chinese bugs, I determined for reasons stated before, not to sepa-

rate the worm-dust. Fumouze's process was used for this purpose in the following manner: 600 grains of the powdered mylabris were introduced into a wide-mouth glass-stoppered bottle, which was then filled with chloroform; after macerating for three days the liquid portion was poured off and filtered through a little cotton. The maceration with chloroform was repeated several times, until a drachm of the filtered portion left on evaporation merely a faint yellowish spot. Twelve ounces of chloroform were consumed in this operation. To avoid any loss of the active principle by transferring the chloroformic tincture into other vessels, the liquid was at once collected in a porcelain capsule, and the chloroform allowed to evaporate spontaneously. The residue, which was of a brown color, was then treated with bisulphide of carbon, and the solution, including the undissolved cantharidin, transferred to a small filter, which was subsequently well washed with bisulphide of carbon. After the odor of this liquid had disappeared from the funnel, chloroform was poured upon the filter in small quantities, and after all the crystals had dissolved, the filter was filled with chloroform twice to extract any cantharidin which might have been absorbed by the paper. The chloroformic filtrate was collected in a tared capsule, evaporated spontaneously, and the residue weighed.

In this way 6.097 grains of pure cantharidin of merely a pale yellow color were obtained, which is equal to 1.016 per cent. If two-fifth per cent. of cantharidin is regarded as the yield of fair medicinal cantharides, it will be seen that the mylabris is two and one-half times stronger; it is fully twice the strength of the best commercial cantharides, and it yields 1.78 times more cantharidin than the best yield recorded.

III. CHEMISTRY.

ANALYSIS OF GLACIAL PHOSPHORIC ACID OF COMMERCE.

BY PROFESSOR ALBERT B. PRESCOTT.

QUERY 28.—Glacial phosphoric acid containing large proportions of silicate and phosphate of soda has been observed in European markets. What is the quality of the acid supplied in this country?

I HAVE examined six samples of glacial phosphoric acid, obtained at Detroit, Ann Arbor, and Chicago, and have obtained the following results.

There is much difference in the elegance of the samples, No. 2 being remarkably beautiful, and No. 6 especially undesirable in appearance. No one of the samples would be rejected by the tests of the Pharmacopœia of 1860; no one of them contains notable quantities of silicic acid, or of potassa. Three of them are almost absolutely free from earths, and three give a slight turbidity with ammonia. No. 2 gives a very minute reaction for arsenic with Marsh's test, though not a perceptible coloration by continued treatment with sulphydric acid. All of them contain soda, in quantity, as follows, as obtained from 1.000 gramme of the glacial acid, weighed in the state purchased.

No.	Manufacturer.	NaO,CO_2 from 1.000.		NaO in 1.000.		NaO,PO_5 in 1.000.
1.	Powers & Weightman, . .	0.120	or	0.070	or	0.230
2.	Merck, ...	.182		.107		.352
3.	Merck, ...	.200		.116		.382
4	Not known, ...	.134		.078		.256
5.	Powers & Weightman, . .	.123		.072		.237
6.	Not known, ...	.161		.094		.308

The soda was determined by the precipitation of the phosphoric acid with solution of acetate of lead (as recommended by Duflos), the removal of the excess of lead by sulphydric acid, and the evaporation and subsequent ignition of the filtrate, the residue being weighed as carbonate of soda. In

two of the analyses, the very slight amount of earths was removed from the carbonate of soda by filtration and evaporation of the filtrate. The final residue was, in each case, found free from phosphoric acid and from lead. The acetate of lead used as reagent, being found to contain a slight amount of soda acetate, it was used in standard solution, carefully assayed, and its quantity of carbonate of soda (the same in each analysis), was deducted from the total quantity.

ANN ARBOR, MICH., June 15th, 1872.

NOTE ON CITRATE OF BISMUTH AND AMMONIA.

BY EDWARD R. SQUIBB, M.D.

THIS preparation does not appear to have satisfied the expectations of medical men in this country as a substitute, or even as an alternate for the less soluble salts of bismuth. But yet it does appear to be well adapted to certain uses, and a certain class of cases, and has therefore a permanent standing in the current Materia Medica. As found in the market, however, it is wanting in uniformity of composition, and in readiness of solubility, and the writer is disposed to attribute these differences less to design in the maker than to the process adopted, but chiefly to the plan of drying the salt in scales. In the writer's judgment and experience this method of drying never can yield a very uniform result, and should only be resorted to when no better method is practicable. Its popularity seems to depend chiefly upon the fine appearance of preparations so dried without much consideration for uniformity of result. Hence, although the writer would not seek to change the form of preparations well established in use, which are dried in this way, yet in new preparations would urge the use of any other method that would yield more accurate and uniform results.

Citrate of bismuth and ammonia is a crystallizable salt, the

writer having had it in crystals looking not unlike sulphate of potassa in size and general appearance. In drying, even at a very low artificial temperature, the crystals fall into a granular powder. This powder contains 61.64 per cent. of BiO_3 and 37.1 per cent. of citric acid, and is slowly though perfectly soluble in cold water, and easily and quickly soluble in warm water. No salt could be obtained in any other way which would yield over 53.3 per cent. of teroxide of bismuth, and about 52.2 per cent. was about the average obtained by several easily practicable processes, including the process of drying in scales. The scales prepared and sold by Messrs. Rosengarten & Sons, of Philadelphia, gave fully this average, and the only criticism that can be fairly made against this preparation falls rather upon the drying in scales, or the want of uniformity of composition inseparable from this mode of drying. And even this want of uniformity is not very great, generally within 2 per cent. Indeed, it is rather doubtful whether the method here to be suggested, will, upon long practice and in various hands, produce any better results than those obtained by the scale process in the hands of these skilful makers, but it yet may be better in principle and better adapted to general and less skilful use.

Referring to the published papers of Messrs. Bartlett, Ebert, and Markoe, in the American Journal of Pharmacy for 1865, 1866, and 1869, and to the British literature on the subject for all the details, the writer will merely aim to make the points which he has to offer in addition to the published information on the subject.

The insoluble tercitrate of the teroxide of bismuth is not very difficult to make in many ways beside those published, but the salt not unfrequently contains traces of silver, or is in some other way sensitive to the action of light, and carries the sensitiveness on into the double salt. The addition of ammonia to render this citrate of bismuth soluble, and to get this in proper proportion, or in slight excess, is not particularly difficult, but to maintain the proper and uniform proportion through the drying process is less easy, and perhaps is rarely attained. The drift of all recent chemical research seems to

indicate that the molecule of all definite chemical compounds is, so to speak, tightly or loosely bound or held together in proportion to the quantivalence of the elements of their composition. Monads make a strong or tight molecule; while triads like bismuth and citric acid form a weak or loose molecule, easily disturbed or split up, and which does not appear to become compact and definite in the presence of an excess of the elements which enter into it. If such excess be avoided the saturations seem more definite and perfect, and the molecule more compact and resisting, or better locked together. For example, citrate of bismuth and ammonia carefully dried with a small excess of citric acid and ammonia forms with its water of constitution a dry scale, whose molecule is so loose that it is easily and promptly soluble in cold water, and the solution decomposes or splits up easily into other molecules, the less soluble of which are liable to precipitate. When there is no excess of either constituent, the molecule seems more compact and more resisting, and takes additional properties of water much more slowly, but makes a more definite and more permanent solution. Whether this attempt at theoretical reasoning be plausible or not, the facts, so far as the writer's experience goes, appear to be as follows: When a solution of citrate of bismuth and ammonia is made with a slight excess of citric acid, and perhaps a little larger excess of ammonia, a portion of it dried in scales on glass gives a salt which dissolves at once in cold water perfectly. This solution in a few weeks—and the time seems very variable—will deposit an insoluble precipitate. If another portion of the same solution be poured into stronger alcohol, the alcohol being in the proportion of about four-fifths of the total mixture, the mixture being made slowly and with active stirring, the salt is precipitated in the form of a thick, ropy liquid. This settles out of the alcohol, and within twenty-four hours becomes a compact, semi-solid mass at the bottom of the vessel, from which the alcoholic liquid can be poured off clear to the last few drops. This alcoholic liquid now contains nearly all the water from the solution, and appears to contain all the excess of ammonia and citrate of ammonia, and con-

tains a little of the bismuth salt, all of which are recovered by distilling off the alcohol. The semi-solid salt is cut in slices, and then these set on edge upon glass, and dried at the same temperature and in the same way as the scales. These dry and somewhat tough or horny slices are then rubbed to a fine powder. This powder seems to be of a pretty uniform character, varying in composition between 52 and 53 per cent. of oxide of bismuth, and between 36 and 37 per cent. of citric acid; or, in other words, this appears to be a normal, complete, double salt, varying in its hygrometric condition. When added to cold water, even in small proportion, it forms a perfectly opaque, white mixture, from which the larger particles promptly settle out. Indeed, the powder appears to be quite as insoluble as the citrate of bismuth without ammonia, and will be passed at once as an insoluble preparation. On looking at the vessel again in an hour or two, if in warm weather, or in a longer time if the weather be colder, a perfectly transparent solution will be found. If warm water be used this transparent solution is obtained at once. This solution does not appear to be liable to spontaneous decomposition, or splitting into a soluble and an insoluble salt, like the solution made from the scales, but if kept long enough will mould like all solutions of salts made with vegetable acids.

This subject has not been investigated with proper or sufficient accuracy, nor have the comparative experiments been repeated as they should have been, to justify the publication of the statements here made, even in this guarded way. But the circumstances related, and other minor points in the experience of the writer, have been accepted as of sufficient weight to make him discard the scale process for citrate of bismuth and ammonia, and adopt that by precipitation by alcohol, although, as was foreseen, the powder is often returned or complained of as insoluble, and the sales of it are very small and very difficult to effect.

Probably the best practice for the pharmacist is to make and keep, or to buy, the dry insoluble simple citrate of bismuth, and make the solution of the soluble double salt from

this as wanted for prescription use, by simple admixture with water, and then the careful addition of water of ammonia until the solution has a faint odor of ammonia, and becomes perfectly transparent. The after addition of a mere particle or two of citric acid to take the trace of free ammonia then completes the extemporaneous process, except the making up to the prescribed or desired measure by water. The process is no more troublesome, nor does it require more skill than the officinal process for solution of acetate of ammonia, and possesses similar advantages in being freshly made as wanted.

BROOKLYN, August, 1872.

ON THE AMOUNT OF ALKALOIDS CONTAINED IN SOME COMMERCIAL ELIXIRS.

BY OTTMAR EBERBACH.

QUERY 38.—What proportion of alkaloids, claimed by the several manufacturers, are contained in the different elixirs?

THE unceasing accumulation of literature agitating the elixir question, instead of leading to a systematic uniformity, is steadily increasing the complexity, with the mass of supposed information; and the style of these medicines is so attractive that nearly the whole Materia Medica is drawn into the current of the elixir swindle.

The intended object of elixirs is to make certain medicines agreeable to the taste and acceptable to the stomach. The substances constituting these preparations are invariable: alcohol, sugar, aromatics, and the active principles.

As we find the elixirs in market, the proportion of alcohol is comparatively large, and the dose of active ingredients necessarily small, instead of being so adjusted that the former would be but a minimum in comparison with the dose of active ingredients administered. This circumstance makes these elixirs appear as serving more the purpose of an intoxicating stimulant than that of a medicine.

The most popular of these elixirs, are those of calisaya, cinchona with iron, cinchona with iron and strychnia, ferrated elixir of gentian, and elixir of valerianate of ammonia.

In order to satisfactorily answer the query, as to the quantity of alkalolds contained in the elixirs of the drug market, samples were obtained from various sources, and submitted to careful examination. The results are herewith given.

No. 1. "*Ferrated Elixir of Cinchona.* Prepared by John Wyeth & Brother, Philadelphia."

This preparation has a wine-red color, and slightly acid reaction.

Sulphuric, muriatic, and nitric acid added to portions of the elixir, produced white precipitates soluble in an excess of the acids.

Caustic soda added to a portion, produced a white precipitate; heat being applied ammonia was evolved, and the liquid turned to a dark reddish-brown, with flakes floating in the same.

To a portion caustic ammonia was added, producing a white precipitate, partly soluble in an excess of reagent.

Ferrocyanide of potassium turned to a bluish-green.

These reactions indicate the presence of iron in the form of pyrophosphate.

Four fluid ounces were treated with caustic soda, heated on a water-bath, until the alcohol and liberated ammonia were expelled, the precipitate collected on a filter, washed with cold water, dissolved in strong alcohol, filtered, evaporated to dryness in a porcelain crucible, the crucible and contents allowed to cool under a bell-glass over sulphuric acid, and then weighed, giving 3.2 grains alkaloids.

These alkaloids were dissolved in dilute sulphuric acid in slight excess, treated with a solution of bicarbonate of soda sufficient to neutralize, let stand for an hour, the precipitate collected on a filter and washed with cold water. The filtrate marked A was set aside for further examination. The precipitate dissolved in dilute sulphuric acid was treated with caustic ammonia and ether; a precipitate remained indicating

the presence of cinchonia. This was collected on a filter, washed with ether, dried on a water-bath; a portion put into a dry test-tube, heated carefully, it fused, then sublimed in the form of white fumes, and deposited in the colder parts of the tube in the shape of bulky white sublimate, proving the presence of cinchonin. The ethereal filtrate was evaporated to dryness, the residue washed with cold water, dissolved in dilute sulphuric acid, and treated with chlorine water and ammonia, giving an intense green color, proving the presence of quinia.

The filtrate A was evaporated to dryness, the residue treated with absolute alcohol in which it partly dissolved, filtered, and the filtrate treated with chlorine water and ammonia producing a green color, proving the presence of quinia.

No. 2. "*Elixir Calisaya Bark, Iron, and Strychnia.* Each teaspoonful containing one-sixtieth of a grain of strychnia. Prepared by John Wyeth & Brother, Philadelphia."

This preparation has a wine-red color, and slightly acid reaction. Reactions same as in No. 1, indicating the presence of pyrophosphate of iron.

Four fluid ounces gave 3.5 grains alkaloids.

These submitted to qualitative analysis were found to be a mixture of quinia, cinchonia, and strychnia. To prove the presence of strychnia the filtrate A obtained after treating the solution of the alkaloids in dilute sulphuric acid, with bicarbonate of soda, was evaporated to dryness, treated with absolute alcohol, filtered, the residue washed with cold water, dried, and a portion dissolved in concentrated sulphuric acid, then a crystal of chromate of potassa added, producing the characteristic violet blue color of strychnia.

No. 3. "Caswell, Hazard & Co.'s, *Ferrophosphorated Elixir of Calisaya Bark.*"

An agreeable, slightly bitter-tasting preparation, of an apple-green color, slightly acid.

Caustic soda turns to a deep yellow, producing a white precipitate, and evolves ammonia.

Caustic ammonia produces slight turbidity, which disappears by adding an excess.

Ferrocyanide of potassium turns to a blue color.

Acids produce voluminous white precipitates soluble in an excess. These reactions indicate the presence of pyrophosphate of iron.

Four fluid ounces gave 0.75 grains alkaloids.

This was found to be pure quinia.

No. 4. "Caswell, Hazard, & Co.'s *Ferrophosphorated Elixir of Calisaya Bark with Strychnia.*"

Properties same as No. 3.

Four fluid ounces gave 1.2 grains alkaloids, consisting of quinia and strychnia.

No. 5. "Caswell, Hazard & Co.'s, *Elixir Phosphate Iron, Quinine, and Strychnia.* Each teaspoonful containing one grain of phosphate of iron, one grain phosphate of quinia, and $\frac{1}{32}$ of a grain of strychnia."

This sample was of a wine-red color, quite bitter, with a heavy deposit in the bottom of the bottle.

Iron present in the form of pyrophosphate.

Four fluid ounces of the filtered elixir gave 10.63 grains alkaloids, consisting of quinia and strychnia.

The deposit was collected on a tared filter, washed with strong alcohol, dried and weighed, giving 58.7 grains deposit. This was dissolved in dilute sulphuric acid with the aid of a gentle heat, filtered, and the filtrate precipitated with caustic soda, heated until the liberated ammonia was expelled, the precipitate collected on a filter, washed with cold water, dissolved in strong alcohol, filtered, the solution evaporated to dryness, and weighed, giving 3.6 grains of alkaloids.

These were found to be a mixture of quinia and strychnia.

The alcoholic washings obtained by washing the deposit after the elixir had been filtered off, were evaporated to dryness, the residue dissolved in dilute sulphuric acid, precipitated with caustic soda, collected on a filter, washed with cold water, dried and weighed, giving 8.3 grains alkaloids consisting of quinia and strychnia.

These results summed up give 54.42 grains alkaloids contained in one pint of the elixir.

No. 6. "*Elixir Calisaya, Iron, and Strychnia.* Each fluid drachm contains five grains Calisaya bark, one grain of iron, and $\frac{1}{100}$ grain of strychnia. Prepared by Tilden & Co., New Lebanon, New York."

This sample was of a dark orange color, and slightly acid reaction.

Caustic soda added to a portion, produced a white precipitate and evolved ammonia.

Caustic ammonia gave white precipitate partly soluble in excess.

Ferrocyanide of potassium turned to a pale green color. Acids produce no change.

To a portion treated with caustic soda, and filtered, chloride of calcium was added; no change was produced; on applying heat an abundant white gelatinous precipitate was obtained, which on cooling redissolved; this behavior proves the presence of tartaric acid.

Four fluid ounces gave 2.3 grains alkaloids, consisting of quinia, cinchonia, and strychnia.

No. 7. "*Elixir Calisaya and Pyrophosphate of Iron.* Each fluid ounce contains thirty grains of Calisaya bark and twelve grains of iron. Prepared by Tilden & Co., New Lebanon, New York."

This preparation has an orange color. Reactions same as No. 1.

Four fluid ounces gave 1.73 grains alkaloids, composed of quinia and cinchonia.

No. 8. "*Elixir Quinine, Iron, and Strychnia.* Each fluid ounce contains one grain quinine, eight grains of iron, and $\frac{8}{100}$ of a grain of strychnine. Prepared by Tilden & Co., New Lebanon, New York."

Color light orange. Reactions same as No. 1.

Four fluid ounces gave 3.6 grains alkaloid, which were found to consist of quinia and strychnia.

No. 9. "*Elixir Cinchona, Iron, and Strychnia.* Each teaspoonful contains $\frac{1}{64}$ of a grain of strychnine. Prepared by J. R. Nichols & Co., Boston."

This preparation has a wine-red color. Turns darker with caustic ammonia.

Caustic soda produces a white precipitate in a reddish-brown fluid; this filtered, and to the filtrate calcium chloride being added, no change was produced. On applying heat an abundant gelatinous precipitate was obtained, which on cooling redissolved; this behavior proves the presence of tartaric acid.

Ferrocyanide of potassium produced a green color.

Four fluid ounces gave 1.9 grains alkaloids, consisting of quinia and strychnia.

No. 10. "*Elixir of Calisaya, Iron, and Strychnia.* Each fluid ounce contains sixty grains Calisaya bark, ten grains pyrophosphate of iron, and $\frac{8}{100}$ of a grain of citrate of strychnine. Prepared by Park, Davis & Co., Detroit."

Color apple-green. Reactions same as No. 1.

Four fluid ounces gave 6.3 grains alkaloids. These were a mixture of quinia, cinchonia, and strychnia.

No. 11. "*Elixir Iron, Quinine, and Strychnia.* Each tablespoonful contains two grains pyrophosphate of iron, one grain quinine, and one-sixtieth of a grain of strychnia. Prepared by Park, Davis & Co., Detroit."

Color apple-green. Reactions same as in No. 3.

Four fluid ounces gave 4.9 grains alkaloids, consisting of quinia and strychnia.

The writer devoted much time to the examination of the above samples, having made more than forty assays for estimating the amount of alkaloids they contained; the results given are in every case the mean result of not less than three assays. To facilitate comparison the results are tabulated as follows:

Names of Manufacturers.	Amount of Bark claimed in 1 pint.	Amount of Alkaloid claimed in 1 pint.	*Amount of Alkaloid calculated in 1 pint.	Amount of Alkaloid found in 1 pint.	Amount of Alkaloid falling short of claim.	Amount of Alkaloid exceeding claim.
	Grains.	Grains.	Grains.	Grains.	Grains.	Grains.
John Wyeth & Brother, Ferrated Elixir of Cinchona	640	.....	12.8	12.8	.....	.....
John Wyeth & Brother, Elixir Calisaya Bark, Iron, and Strychnine.	640	2.56	15.36	14.	1.36	.....
Caswell, Hazard & Co., Ferrophosphorated Elixir of Calisaya Bark	480	.....	9.6	3.	6.6	.....
Caswell, Hazard & Co., Ferrophosphorated Elixir of Calisaya Bark, with Strychnine	480	1.	10.6	4.8	5.8	.....
Tilden & Co., Elixir Calisaya Bark, Iron, and Strychnia	640	1.28	14.08	9.2	4.88	.....
Tilden & Co., Elixir Calisaya Bark and Pyrophosphate of Iron	480	.....	9.6	6.9	2.7	.....
Tilden & Co., Elixir of Quinine, Iron, and Strychnia	.....	17.28	.....	14.4	2.88	.....
J. R. Nichols & Co., Elixir of Cinchona, Iron, and Strychnia	.....	.....	.....	7.6	.....	.....
Park, Davis & Co., Elixir Calisaya, Iron, and Strychnia	960	1.28	20.48	25.2	.....	4.74
Park, Davis & Co., Elixir Iron, Quinine, and Strychnia	.....	32.5	.....	19.6	12.9	.....

* Bark estimated at two per cent. of Alkaloid, lowest standard of Pharmacopœia. Tablespoonful estimated at four fluid drachms; dessertspoonful at two fluid drachms; teaspoonful at one fluid drachm.

The true view of the elixir question conveys the evidence that the so-styled elixirs of the present time are very unscientific preparations; but to comply with demands, a practical formula for these preparations, and a simple, uniform, and expressive nomenclature, are very much needed. The imposition with these preparations will not cease to flourish until such are universally adopted.

At the suggestion of Professor Albert E. Ebert, the writer will present to the Association several formulæ for this class of preparations.

After numerous experiments with the aromatic tinctures of cinchona, obtained by displacing different mixtures of Calisaya bark and aromatics with alcohol and water mixed in various proportions, and treated with ferric hydrate, the writer was

convinced that this process was not only too tedious to be practical, but also altogether unsatisfactory in its results. In the first place cinchona bark cannot be completely exhausted with weak alcohol; and secondly, after treating with ferric hydrate, the natural combinations of the cinchona alkaloids are broken up, and a considerable amount of the alkaloids is retained by the ferric hydrate, which can to a certain extent be recovered by treating the residue with alcohol.

These considerations induced the writer to employ the unbleached alkaloids of Calisaya bark, as obtained by precipitating an infusion of Calisaya bark made with acidulated water, with an alkali.

In regard to the nomenclature for the elixirs given below, the writer would suggest the following: First, an elixir proposed as a vehicle to render such medicines as the physician may prescribe palatable and acceptable to the stomach; this to be called "Simple Elixir." Secondly, one to represent the simple elixir of Calisaya bark; to be termed "Elixir of Calisaya." Thirdly, one to replace the variety of elixirs of bark and iron, to be styled "Ferrated Elixir of Calisaya." Fourthly, one to suppress the large variety of elixirs, under the names elixir bark, iron, and strychnia, Calisaya, iron, and strychnia, phosphate iron, quinia, and strychnia, &c.; to be named "Ferrated Elixir of Calisaya and Strychnia." Fifthly, one named "Ferrated Elixir of Gentian," and sixthly, one to discard the large number of poor so-styled elixirs of valerianate of ammonia; to be called "Elixir of Valerianate of Ammonia."

SIMPLE ELIXIR.

Take of—

Moist Fresh Orange-Peel,	2 drachms.
Star Anise in fine powder,	½ drachm.
Cardamom " "	20 grains.
Strong Alcohol,	sufficient.
Water,	"
Simple Syrup,	6 ounces.
Caramel,	10 grains.

Reduce the orange-peel to a fine pulp, then add the star anise and cardamom in fine powder, pack quite firm into a

glass percolator, and pour on a mixture of equal parts alcohol and water, until six ounces of tincture have passed. Then add the syrup with caramel and water sufficient to the measure of one pint, and filter.

ELIXIR OF CALISAYA.

Take of—

Unbleached Alkaloids of Calisaya,	48 grains.
Citric Acid,	12½ "
Simple Elixir,	16 ounces.

Triturate the alkaloids with the citric acid until thoroughly mixed, then with the elixir, and filter.

FERRATED ELIXIR OF CALISAYA.

Take of—

Unbleached Alkaloids of Calisaya,	48 grains.
Citric Acid,	12½ "
Pyrophosphate of Iron,	128 "
Simple Elixir,	sufficient.
Water,	"

Triturate the alkaloid with citric acid until thoroughly mixed, and then with twelve ounces of the elixir. Dissolve the pyrophosphate of iron in half an ounce of water, and stir in gradually the solution of the alkaloids, then add sufficient simple elixir to bring to the measure of one pint, and filter.

FERRATED ELIXIR OF CALISAYA AND STRYCHNIA.

Take of—

Ferrated Elixir of Calisaya,	16 ounces.
Strychnia,	2 grains.
Citric Acid,	6½ "

Rub the strychnia with the acid to a fine powder, mix with one ounce of the elixir, apply heat, and when complete solution has taken place, mix thoroughly with the remaining elixir.

FERRATED ELIXIR OF GENTIAN.

Take of—

Gentian in fine powder,	1 ounce troy.
Licorice Root in fine powder,	1 " "
Moist Fresh Orange-Peel,	2 drachms.
Star Anise in fine powder,	½ "
Cardamom " "	20 grains.
Pyrophosphate of Iron,	128 "
Strong Alcohol,	sufficient.
Water,	"
Syrup,	6 ounces.

Bruise the moist orange-peel to a fine pulp, add the gentian, licorice root, star anise, and cardamom in fine powder, pack into a glass percolator, and pour on a mixture of equal parts alcohol and water until six ounces of percolate have passed. Dissolve the pyrophosphate of iron in water, add sufficient water to the measure of four ounces, add the syrup, mix with the percolate, and filter.

ELIXIR OF VALERIANATE OF AMMONIA.

Take of—

Valerianate of Ammonia,	256 grains.
Simple Elixir,	16 ounces.
Water of Ammonia,	sufficient.

Dissolve the valerianate of ammonia in two ounces of elixir, carefully neutralize with water of ammonia, then mix with the remainder of the elixir, and filter.

ANN ARBOR, MICH.

SEIDLITZ POWDERS.

BY WILLIAM GRASSLY, CHICAGO, ILL.

QUERY 33.—In how far do the seidlitz powders of the market agree with the quantities and quality of the formula of the United States Pharmacopœia?

IN the belief of your reporter, this is the first time that public inquiry was ever made regarding the commercial standard of seidlitz powders.

The query accepted, it was the reporter's earnest intention to fulfil his duty. On account of the great disturbance in this city, in the latter part of last year, and until far into the spring, for many inconveniences and various other reasons, nothing could be done regarding this query until about the commencement of summer. The desire of having a fair representation from all sections of the country made it necessary to address parties of the different cities for aid in obtaining samples, and it was the expectation of your reporter that every pharmacist requested for the necessary assistance, would, without hesitation, take a little interest in and respond in due time with the samples, and the writer was very much pleased by the promptness of many, and the interest for the Association manifested by them, and quite a number of friendly and encouraging letters were received. But also, through the dilatory disposition of some individuals, samples from various cities were not received until very late and the investigation suffered unnecessary delay, although the money for the purchase of samples was forwarded; some of the colleagues addressed had not taken interest enough in the matter to respond in due time with samples, and a few of them never responded either with the requested samples any reason as to the cause of delay, or with the money forwarded, which, however, was a trifling sum. It must be added that the parties addressed for the required aid are all members of the Association, and without any doubt know that for making an investigation the investigator cannot wait until the commencement of the forthcoming session.

The request of the query is a quantitative and qualitative examination. Before approaching the details of analysis made, a few remarks are deemed necessary. The directions in our Pharmacopœia for making seidlitz powders are as follows:

Take of—

Bicarbonate of Soda, in fine powder, . .	1 troy ounce.
Tartrate of Potassa and Soda, in fine powder,	8 "
Tartaric Acid, in fine powder, ...	420 grains.

Mix intimately the bicarbonate of soda with the tartrate of potassa and soda, and divide this mixture into twelve equal parts; then divide the tartaric acid into the same number of equal parts; lastly, keep the parts, severally of the mixture and of the acid, in separate papers of different colors.

Divided into twelve equal parts, each pair of powders, the one much the largest of the two contains two drachms of tartrate of potassa and soda mixed with forty grains of bicarbonate of soda, the other thirty-five grains of tartaric acid. In putting up seidlitz powders care must be taken to have the Rochelle salt and bicarbonate of soda intimately mixed, which is best effected by first mixing in a capacious mortar, then sifting through a No 40 or 50 sieve for at least four to six times. They should be put up only in dry weather, and be kept in a dry place, otherwise they will attract moisture, and will after a short lapse of time get very hard. Sometimes enough moisture is attracted to dissolve part of the tartaric acid. The Pharmacopœia says the mixed powder and the acid are to be put in papers of different colors. It is a popular practice to put the alkaline powder in blue, and the acid in white paper; to this some exceptions were found among the samples received for investigation.

Particular attention is called in regard to the quality of paper used for this purpose. None but the indigo paper should be used, and no mineral-colored, as the Prussian blue, which is wrongly used for this purpose in so many pharmacies, or the anilin-colored paper. Among the numerous samples of seidlitz powders in possession of the writer a great variety in regard to color of paper was found, and by many of the samples the color of paper was partly destroyed, in one so completely that it could scarcely be recognized, and by dissolving the contents and using the appropriate tests the presence of Prussian blue was easily detected.

Weighing or Measuring the Seidlitz Powders.

According to our Pharmacopœia every powder should weigh, the one of the mixture one hundred and sixty grains,

the acid powder thirty-five grains. *Do the pharmacists in general regard this standard?* Of the one hundred and sixty-five samples collected from fourteen States and the Dominion of Canada, representing nineteen of the most noted cities, only *two samples* were found to be correct in weight. From this it can be safely stated that the standard weight is universally disregarded, not only by those who are wrongly styled "pharmacists," and naturally care little about accuracy, or those who, less fortunate than others, must content themselves with small stores located on side streets, but also by such who are looked upon as great lights in pharmacy, and have long had the reputation as very accurate and conscientious apothecaries.

Perhaps it is thought the simple seidlitz powder is too insignificant, but usually those who do not fulfil minor duties can hardly be trusted with important ones, and in establishments where so little attention is given to even the insignificant seidlitz powder (which, however, is well adapted to the accumulation of dollars), it is doubtful whether the required accuracy exists for the compounding of prescriptions upon which the life of the patient often depends. It is the rule in many pharmacies that the putting up of seidlitz powders is left to the apprentices, and if not put up right the fault reflects on them. But is the senior justified in instructing his apprentices to measure the seidlitz powders, or if he does not look to it that correct weights are used? It is also often observed that too important matters are intrusted to apprentices or unqualified persons because proprietors do not feel disposed to engage competent pharmacists (cheap help being sometimes preferred), and if employed they are seldom paid for their qualifications. It is an easy matter to preach: "Young men, become educated, attend the colleges, spend your money and time for study, the importance of pharmaceutical business demands it;" but let proprietors set examples to encourage the young pharmacists and to give inducements that their time and patient studies will be repaid.

To measure the seidlitz powders is inexcusable, and this villainous practice is almost universal. Mr. William Saun-

ders, of London, Canada, has kindly forwarded one of the English-made seidlitz measures, and informed that it is in common use throughout Canada. The same kind of measure is used in all States of the Union. The larger cavity of this measure, used for the alkaline powder, holds from ninety-five to one hundred and twenty grains, according as the powder is pressed in, and the smaller cavity, used for measuring the tartaric acid, holds from twenty to twenty-four grains. Seidlitz powders measured are therefore far short in weight. To have them correct is to weigh each separately.

The number of seidlitz powders received indicate that there is very little uniformity in the folding and neatness. It was amusing to behold the different manners in which they were dispensed; some were very elegant, while others were wrapped, the two powders, in paper of Hostetter's Almanac, others in different patent medicine circulars, and a great many were not wrapped up at all, only a piece of twine tied around them.

More attention should be given to this. Each powder should be neatly folded, be of the same size, and, if sold single, the two powders should be wrapped in clean paper, or inclosed in a small envelope, and a small label with direction should accompany it. Considerable neatness and elegance can be displayed, which is always pleasing to the eye of the customer. Not only should cleanliness and neatness be observed in regard to the seidlitz powder, but throughout an entire pharmaceutical establishment, and particularly at the prescription counter, then the prescriptionist need not withdraw behind a prescription case, constructed so as to conceal him from the eyes of those presenting prescriptions and waiting for the medicines; by compounding prescriptions in view of the public all suspicion is allayed.

Your reporter expected to be enabled to represent with this investigation four more of our largest cities: Philadelphia, Pa., Washington, D. C., New Orleans, La., and San Francisco, Cal., but from the last three cities no answers were received of the parties addressed.

The samples from Philadelphia arrived too late, and could not be examined under any consideration.

In the process of assay the writer did not embrace the minute details of analytical chemistry, but the most practical and sufficiently accurate course was adopted.

No traces of admixture of antimony could be found. Twenty-eight of the most suspicious samples were tested for this.

Samples which were received from parties who were addressed for forwarding samples were not placed in the report; they were most correct, and some a little extra weight. It might be supposed that they were put up for the occasion, but this illustrates that seidlitz powders can be put up right.

Those samples which were very near correct in quantity may be considered as having been put up right; such which had been kept in a damp place, attracted moisture, and consequently were a little over weight; and others that were put up when the materials were moist, or in damp weather, again lost in weight, and are therefore a little under weight.

Process of Assay.

The officinal seidlitz mixture may be indicated by the formula $a(KO.\bar{T}+NaO.\bar{T}+8HO)+b(NaO,2CO_2,HO)$, in which a and b are known quantities. But a seidlitz mixture of an unknown character finds expression in the formula $x(KO.\bar{T}+NaO.T+8HO)+y(NaO,2CO_2,HO)+z$, in which x and y are unknown quantities, and z is impurity of whatever kind.

Qualitatively a suspected mixture is tested for tartar emetic and sulphates. Quantitatively the proportion of bicarbonate of soda and double tartrate of soda and potassa must be ascertained.

Antimony is detected by the methods of Fresenius or Marsh, and sulphuric acid by the addition of a salt of baryta to the solution acidulated with nitric or muriatic acid.

Fresenius's method: If a few drops of a solution of antimony, containing some free hydrochloric acid, are poured into a platinum dish (the inside of a platinum crucible cover), and a small piece of zinc is introduced, hydrogen is evolved, and antimony separates, staining the part of the platinum covered

by the liquid brown or black, even in the case of very dilute solutions; this new reaction I can recommend as being delicate and characteristic.

The amount of bicarbonate of soda is calculated from the yield of carbonic acid which the mixture evolves when treated with excess of acetic acid. The ratio is bicarbonate of soda 84 to carbonic acid 44. The amount of Rochelle salt is determined from the quantity of bitartrate of potassa precipitated by an excess of acetic acid, and subsequent addition of alcohol. 100 grains of pure seidlitz mixture contain 25 grains of bicarbonate of soda, and 75 grains of Rochelle salt. The weight of the carbonic acid is 13.089 grains.

The resulting cream of tartar is exactly 50 grains.

The decompositions in these operations is shown by the two equations below:

$$a(KO.\overline{T}+NaO.\overline{T})+b(NaO,2CO_2,HO)+b(\overline{A})=$$
$$a(KO.\overline{T}+NaO.\overline{T})+b(NaO.\overline{A})+b(2CO_2)+b(HO).$$

and

$$a(KO.\overline{T}+NaO.\overline{T}+8HO)+b(NaO.\overline{A})+c(\overline{A})+\text{Alcohol}=$$
$$a(KO.2\overline{T}HO)+(a+b)(NaO.\overline{A})+(c-a)\overline{A}+a(7HO)+\text{Alcohol}.$$

The process in the absence of sulphates is based on the reaction expressed in the above equations. The seidlitz mixture in that case is represented by the formula $x(KO.\overline{T}+NaO.T8HO)+y(NaO,2CO_2,HO)$.

The treatment with acetic acid liberates the carbonic acid from the carbonate, and decomposes the double tartrate into bitartrate of potassa, which is insoluble in acetic acid and precipitates, and acetate of soda which remains in solution. The addition of alcohol facilitates the complete separation of the bitartrate, leaving the acetate of soda, which is very soluble in alcohol, unaffected in solution.

In the presence of contaminating sulphates, the composition of the mixture under examination is illustrated by the subjoined formula: $x(KO.\overline{T}+NaO.\overline{T}+8HO)+y(NaO,2CO_2HO)+z(MO,SO_3)$.

The last member is the expression for the sulphate of any metallic oxide.

The analysis affords the following equated reactions:

$$x(KO.\overline{T}+NaO.\overline{T})+y(NaO,2CO_2)+z(MO,SO_3)+y(\overline{A})=$$
$$x(KO.\overline{T}+NaO.\overline{T})+y(NaO.\overline{A})+z(MO,SO_3)+y(2CO_2);$$

$$x(KO.\overline{T}+NaO.\overline{T})+y(NaO\overline{A})+z(MO,SO_3)+a(HCl)+b(Ba.Cl)=$$
$$x(KO_2.\overline{T})(x+y)(NaCl)+y(\overline{A})+z(MCl)+z(BaO,SO_3)+(b-z)$$
$$(BaCl)+(a-y)HCl+z(HO);$$

$$x(KO_2.\overline{T})+(x+y)(NaCl)+y(\overline{A})+z(MCl)+z(BaO,SO_3)+$$
$$(b-z)(BaCl)+(a-x+y)(HCl)+c(KO,2CO_2)=2x(KO.\overline{T})+y$$
$$(NaO.\overline{A})+z(MCl)+z(BaO,SO_3)+b-z(BaO,CO_2)+x(NaCl)$$
$$+(a+b)-(x+z)(KCl)+(c-b-z)(2CO_2);$$

$$2x(KO.\overline{T})+y(NaO\overline{A})+z(MCl)+x(NaCl)+(a+b)-(x+y)$$
$$(KCl)+d\overline{A}+Alcohol=x(KO_2.\overline{T})+z(MCl)+(x+y)(NaO.\overline{A})$$
$$+(a+b-z)(KCl)+(d-x)\overline{A}.$$

The mixture is treated with acetic acid, by which the carbonic acid is expelled, the resulting liquid is heated, an excess of muriatic acid added, and the sulphuric acid precipitated with an excess of chloride of barium;* the whole is then supersaturated with an excess of bicarbonate of potassa, heated and filtered; this operation separates the sulphuric acid and excess of baryta. The alkaline filtrate is then treated with a large surplus of acetic acid, then with alcohol, set aside to cool and precipitate completely. The residue of sulphate and carbonate of baryta remaining on the filter is washed with dilute muriatic acid, dried and weighed.

The precipitated bitartrate of potassa is collected on a filter, washed with dilute alcohol, dried and weighed.

The Tables.

The results of the quantitative and qualitative examinations are tabulated in two separate forms. The first, or quantitative table, exhibits direct weights of the mixture and acid only; also showing in additional columns the excess or deficiency of tartaric acid as compared with the officinal pro-

* The author does not state how he prevented the contamination of the precipitated sulphate of baryta with bitartrate of potassa which must be precipitated after adding acetic and muriatic acids, except *by heating the resulting liquid.*—Editor.

portion which the amount of mixture under examination would require, but upon the supposition that the latter is also pure and officinal. However, the qualitative examination has demonstrated that this is not always the case.

The second is the qualitative or analytical table. It shows in successive columns the quantity determined by direct analysis of Rochelle salt and bicarbonate of soda, which 100 grains of the seidlitz mixture contained. It also affords an indication of the amount of contaminating sulphates present, inferred from the quantity of sulphate of baryta which the mixture yielded after strong acidulation with muriatic acid and addition of chloride of barium. In another column the deficiency of Rochelle salt is represented, which in some mixtures was substituted by simple tartrate of soda, but this was only determined in specimens which did not indicate an appreciable amount of sulphuric acid by the preliminary test. The deficiency was ascertained from the weight of cream of tartar which the acid filtrate from the first yield of bitartrate produced after neutralization with bicarbonate of potassa, and reacidulation with acetic acid. The Rochelle salt in every instance is calculated from the weight of bitartrate of potassa, which a large excess of acetic acid aided by a moderate proportion of alcohol produced. The Rochelle salt is exactly one and a half times the weight of the cream of tartar. The bicarbonate of soda is calculated from the quantity of carbonic acid which the mixture evolved with acetic acid. One grain of carbonic acid equals 1.91 grains of bicarbonate of soda. The arrangement of the tables is so constructed as to bring all the samples from each city together. The first and second tables are in every instance connected.

THE FIRST TABLE.

The first column of this table numbers the specimens. The second column names the maker. The third column shows the weight of seidlitz mixture, or alkaline powder, and the fourth column the weight of the tartaric acid. The fifth column indicates the excess of tartaric acid over the proper

officinal proportion for the weight of the mixture, and the sixth column similarly indicates a deficiency.

THE SECOND TABLE.

This table treats only of the seidlitz mixture, because the acid products were not analytically examined. The first two columns correspond with those of the first table. The third column gives the quantity of Rochelle salt, which 100 grains of the mixture contained. The fourth column shows the amount of bicarbonate of soda present. The fifth column indicates the amount of sulphates which contaminate the mixture, and is represented in the condition of sulphate of baryta. The sixth column bears the deficiency of Rochelle salt which an equivalent quantity of tartrate of soda replaced.

CHICAGO, ILL.—First Table.

Number.	Names.	Weight of Seidlitz Mixture.	Weight of Tartaric Acid.	Amount of Tartaric Acid in excess.	Amount of Tartaric Acid deficient.
		Grains.	Grains.	Grains.	Grains.
1	Bliss & Sharp,	162.	47.	12.57	....
2	Gale & Blocki,	128.	42.	14.	....
3	E. H. Sargent,	138.	42.	11 81	....
4	E. H. Sargent,	138	52.	21.81	....
5	Thomas Whitfield,	115.	35.	9.84	....
6	Henry Sweet,	152.	33.	....	0.25
7	J. J. Harrington,	138.	53.	22.81	....
8	Emil Dreier,	120.	9.	....	17.25
9	Ernst G. Mueller,	138.	38.	7.81	....
10	Dale & Heiland,	188.	35.	...	6.12
11	D. R. Dyche & Co.,	165.	38.	1 90	....
12	John Parson,	150.	42.	9.19	....
13	Bryan & Wilson,	200.	54.	10.25	....
14	A. J. Bradford,	110.	33.	8.94	....
15	Theodore H. Patterson,	169.	43.	6.90	....
16	Van Schlieben,	120.	25.	....	1.25
17	Henry Biroth,	160.	35.	....	....
18	Ph. Milleman,	160.	35.	....	....
19	George Hambright,	138.	42.	11.81	....
20	A. C. Vanderburgh,	175.	28.	....	10.28
21	Buck & Rayner,	173.	42.	5.15	....
22	Charles Fredigke,	135.	47.	17 47	....
23	N. Curth,	135.	35.	5.47	....
24	J. H. Fry,	105.	43.	20.04	....
25	Snyder & Barbour,	152.	38.	4.75	....
26	A. Rosenmerkel,	130.	18.	....	10.48
27	Louis Strehl,	128.	35.	7.	....
28	T. J. Bluthardt,	100.	37.	15.12	....
29	J. W. Mill,	155.	39	5.09	....
30	Thomas Brown,	150.	38.	5.19	....
31	L. Woltersdorf,	153.	44.	10.53	....
32	Garrison,	120.	53.	26.75	....

Second Table.

Number.	Names.	Amount of Rochelle Salt.	Amount of Bicarbonate of Soda.	Sulphate of Baryta.
		Grains.	Grains.	Grains.
2	Gale & Blocki,	73.5	24.83	Trace.
4	E. H. Sargent,	70.12	29.60	None.
5	Thomas Whitfield,	63.	34.38	Trace.
6	Henry Sweet,	75.	24.83	Trace.
7	J. J. Harrington,	69.	30.56	Trace.
9	Ernst G. Mueller,	66.	32.47	Not weighed
10	Dale & Heiland,	67.5	28.65	Not weighed
12	John Parson,	70.5	28.65	None.
13	Bryan & Wilson,	70.5	28.65	Trace.
14	A. J. Bradford,	69.	29.60	Not weighed
15	Theodore H. Patterson,	75.	24.83	Trace.

Explanatory Remarks.

A glance over these two tables shows that there is great variation in the weights of the different samples, while the number of those which are far from approaching correctness is great. Accurate ones were found, and in regard to this accuracy Chicago ranks above all the other cities from which samples were received.

No. 17, from Henry Biroth, and No. 18, from Ph. Milleman are the ones which comply with our Pharmacopœia.

No. 2, from Gale & Blocki, labelled "Extra Weight Seidlitz Powders," is found to be in the alkaline powder thirty-two grains short, in the acid seven grains over. Is it meant "extra weight" in acid? Not likely. Such representations are intended to impress on the public that more than the value paid for is given, and it is natural that their powders are purchased in preference to others.

The difference in weight of Nos. 3 and 4, from E. H. Sargent, shows the enormous excess of nearly twenty-two grains of tartaric acid in one of the samples. Although the Rochelle salt and bicarbonate of soda were apparently pure, the proportions in the analysis show an excess of bicarbonate of soda.

No. 5, from Thomas Whitfield, contained a considerable amount of impurity, as woody fibre, and over one-third of bicarbonate of soda.

No. 8, from Emil Dreier, contained a piece of wood-shaving, one-half by one-quarter inch.

No. 9, from E. G. Mueller, was dispensed, the mixture in white, and the acid in blue paper.

No. 12, from John Parson, was labelled "Genuine Seidlitz Powders." Although free from sulphates, it contained too much bicarbonate of soda, and was deficient in Rochelle salt.

No. 14, from Bradford, was labelled "Improved Seidlitz Powders." This sample consisted of impure materials, scantily weighed.

No. 24, from J. H. Fry, and No. 32, from Garrison, are additional illustrations of deficiency of seidlitz mixtures, and the great excess of tartaric acid.

NEW YORK CITY.—First Table.

Number.	Names.	Weight of Seidlitz Mixture.	Weight of Tartaric Acid.	Amount of Tartaric Acid in excess.	Amount of Tartaric Acid deficient.
		Grains.	Grains.	Grains.	Grains.
1	W. B. Parkins & Co.,	175.	49.	10.72	....
2	Ditman & Co.,	160.	38.	3.	....
3	Alexander Hudnut,	180.	35.	....	4.37
4	" "	225.	45.	....	4.22
5	Hegeman & Co.,	176.	28.	....	10.5
6	" "	155.	26.	....	7.91
7	" "	174.	29.	....	9.06
8	Wells & Wooden,	172.	25.	....	12.62
9	Eimer & Amend,	152.	38.	4.81	....
10	G. S. Warner,	120.	24.	....	2.25
11	Milhau's Sons,	218.	45.	....	2.69
12	Balluff & Ramsperger,	155.	35.	1.09	....
13	" "	214.	33.	....	13.81
14	Tarrant & Co.,	....	....	....	....
15	" "	....	....	....	....
16	McKeachnie & Rupert,	152.	37.	3.81	....
17	" "	148.	30.	....	2.37
18	" "	133.	29.	....	....
19	" "	140.	32.	1.37	....

Second Table.

Number.	Names.	Amount of Rochelle Salt.	Amount of Bicarbonate of Soda.	Sulphate of Baryta.
		Grains.	Grains.	Grains.
2	Ditman & Co.,	70.5	24.83	Trace.
7	Hegeman & Co.,	68.25	28.65	5.
8	Wells & Wooden,	75	24.83	None.
9	Eimer & Amend,	70.5	24.83	Not weighed
12	Balluff & Ramsperger,	75.	24.83	None.
14	Tarrant & Co.,	73.5	24.83	Trace.
17	McKeachnie & Rupert,	66.	30.56	6.
18	" "	69.	21.92	6.

Explanatory Remarks.

No. 11, from Milhau's Sons, was labelled "Extra Size."

No. 12, from Balluff & Ramsperger, labelled "Ordinary Size," is, however, a little short.

No. 13, from the same firm, labelled "Larger Size."

No. 14, from Tarrant & Co. Seidlitz powders is one of their

specialties, of which they claim in their circulars that nothing but the purest materials are used. Your reporter received six samples of their powders, three of them labelled "No. 1 Seidlitz Powders, extra weight," the other three, "No. 2 Seidlitz Powders, full weight." The three No. 1 powders were the alkaline powders mixed together, and one hundred grains of this examined showed a small deficiency of Rochelle salt, and a trace of sulphate.

From McKeachnie & Rupert, No. 16 was labelled "No. 2, Full Weight," No. 17 labelled "No. 4, Improved," No. 18 labelled "No. 5, Improved," and No. 19 labelled "No. 6, Excelsior." This firm is making seidlitz powders a specialty, and state in their circulars the full weight powders are made of the best material, the improved are made of second-class material, and the excelsior powders are made to meet the demand for a cheap article. Notwithstanding the explanation in their circulars, only one kind of seidlitz powder is officinal, and no other should be put forth.

ST. LOUIS, MO.—FIRST TABLE.

Number.	Names.	Weight of Seidlitz Mixture.	Weight of Tartaric Acid.	Amount of Tartaric Acid in excess.	Amount of Tartaric Acid deficient.
		Grains.	Grains.	Grains.	Grains.
1	Jones & Sibley,	112.	35.	10.5	....
2	Collins Brothers (wholesale),	128.	40.	12.	....
3	M. W. Alexander,	140.	30.	....	0.62
4	Williams & Co.,	135.	37.	7.47	....
5	W. H. Crawford,	156.	57.	22.88	....
6	Richardson & Co. (wholesale),	112.	16.	....	8.05
7	O. W. Heyer,	136.	35.	5.25	....

SECOND TABLE.

Number.	Names.	Amount of Rochelle Salt.	Amount of Bicarbonate of Soda.	Sulphates.
		Grains.	Grains.	Grains.
1	Jones & Sibley,	69.	26.74	6.
2	Collins Brothers,	70.5	24.83	Not weighed
3	M. W. Alexander,	70.5	19.10	Not weighed
5	W. H. Crawford,	67.5	26.74	Trace.

Explanatory Remarks.

Of No. 3, from M. W. Alexander, the yield of carbonic acid (from the usual quantity of seidlitz mixture operated with) was only ten grains; it is undoubtedly owing to the inferior quality of bicarbonate of soda.

In No. 5, from W. H. Crawford, the excess of acid is enormous. A little excess of soda is likewise shown.

No. 6, from Richardson & Co., was made by W. H. Tallman, of Janesville, Wis.; very deficient throughout.

CLEVELAND, OHIO.—First Table.

Number.	Names.	Weight of Seidlitz Mixture.	Weight of Tartaric Acid.	Amount of Tartaric Acid in excess.	Amount of Tartaric Acid deficient.
		Grains.	Grains.	Grains.	Grains.
1	L. Smithwight,	130.	40.	11.56	....
2	G. W. Clark,	98.	30.	9.65	....
3	S. P. Churchill,	160.	23.	....	12.
4	J. D. Kugan,	120.	35.	8.75	....
5	J. J. Vogt,	125.	27.	....	0.34
6	J. H. Peck,	110.	25.	0.94	....
7	H. Hinsch,	90.	40.	20.31	....
8	Vaupel, Moore & Co.,	147.	35.	2.84	....
9	Sackreider & Casterline,	105.	42.	19.03	....
10	C. S. McKinzie,	153.	33.	....	0.47
11	L. J. Merkel,	124.	20.	....	7.12
12	Hartrup & Huling,	180.	35.	....	4.38

Second Table.

Number.	Names.	Amount of Rochelle Salt.	Amount of Bicarbonate of Soda.	Sulphates.
		Grains.	Grains.	Grains.
1	L. Smithwight,	72.	24.83	Not weighed
5	J. J. Vogt,	69.	30.56	None.
11	L. J. Merkel,	75.	24.83	Trace.

Explanatory Remarks.

No. 2, from G. W. Clark, No. 7, from H. Hinsch, and No. 9, from Sackreider & Casterline, are very deficient.

BOSTON, MASS.—First Table.

Number.	Names.	Weight of Seidlitz Mixture.	Weight of Tartaric Acid.	Amount of Tartaric Acid in excess.	Amount of Tartaric Acid deficient.
		Grains.	Grains.	Grains.	Grains.
1	Henry A. Choat,	148.	35.	2.62	....
2	E. R. Knight,	133.	35.	5.90	....
3	F. T. Church,	250.	50.	....	4.69
4	Ashel Boyden,	138.	35.	4.81	....
5	T. Restieaux,	164.	45.	9.12	....
6	W. D. Atkinson, Jr.,	156.	51.	16.88	....
7	T. Metcalf & Co.,	172.	35.	....	2.62
8	Joseph L. Parker,	225.	26.	....	23.22
9	Henry W. Lincoln,	152.	40.	6 81	....
10	G. D. Dows,	174.	40.	1.94	....

Second Table.

Number.	Names.	Amount of Rochelle Salt.	Amount of Bicarbonate of Soda.	Sulphate of Baryta.
		Grains.	Grains.	Grains.
2	E. R. Knight,	72.	26.74	None.
3	F. T. Church,	70.5	28.65	Trace.
6	W. D. Atkinson, Jr.,	55.5	34 38	Not weighed
7	T. Metcalf & Co.,	72.	24.83	Trace.
8	Joseph L. Parker,	49.5	30.56	Not weighed

Explanatory Remarks.

No. 6, from W. D. Atkinson, Jr., contained a very large excess of tartaric acid.

No. 8, from J. L. Parker, showed a great deficiency of tartaric acid, a large excess of bicarbonate of soda, and some sulphate, and the yield of Rochelle salt very small.

The first six of these samples were dispensed, the mixture in white, and the acid in blue paper.

BALTIMORE, MD.—First Table.

Number.	Names.	Weight of Seidlitz Mixture.	Weight of Tartaric Acid.	Amount of Tartaric Acid in excess.	Amount of Tartaric Acid deficient.
		Grains.	Grains.	Grains.	Grains.
1	T. E. Fooks,	120.	26.	....	0.25
2	George A. Frames,	204.	38.	....	6.62
3	Harles S. Adams,	170.	30.	....	7.19
4	I. Schad,	106.	20.	....	3.12
5	J. H. Bagley,	102.	25.	2.69	....
6	Andrews & Thompson,	210.	40.	....	5.94
7	Coleman & Rogers,	160.	26.	....	9.
8	Adams J. Gosman,	156.	35.	0.88	....
9	N. Hynson Jennings & Co.,	208.	58.	12.5	....
10	Rickes,	220.	21.	....	27.12
11	R. Sappington,	180.	38.	....	1.38
12	Evans & Brother,	122.	25.	....	1.69
13	J. B. H. Jefferson,	175.	30.	....	8.15
14	Adolph Richter,	140.	28.	....	2.62
15	O. Monsarrat,	153.	33.	....	0.47
16	Dr. Gross,	144.	30.	....	1.5

Second Table.

Number.	Names.	Amount of Rochelle Salt.	Amount of Bicarbonate of Soda.	Sulphate of Baryta.
		Grains.	Grains.	Grains.
2	George A. Frames,	70 5	27.69	Trace.
3	Harles S. Adams,	72.	26.74	Not weighed
6	Andrews & Thompson,	75.	24.83	Trace.
7	Coleman & Rogers,	72.	24.83	4
9	N. Hynson Jennings & Co.,	74.62	24.83	None.
10	Rickes,	72.	24.83	5.

Explanatory Remarks.

Most of these powders were deficient in acid, No. 10, from Rickes, very much so.

No. 9, from N. Hynson Jennings & Co., was labelled "These powders can be relied on as being pure and of full strength." This is true; the material proved to be pure, in the right proportions, and the powder over weight, although an excess of acid.

Many of the powders from this city were put up very elegantly.

BROOKLYN, N. Y.—First Table.

Number.	Names.	Weight of Seidlitz Mixture.	Weight of Tartaric Acid.	Amount of Tartaric Acid in excess.	Amount of Tartaric Acid deficient.
		Grains.	Grains.	Grains.	Grains.
1	G. C. Leys,	180.	54.	14.62	....
2	Weber Brothers,	137.	38.	8.03	....
3	Cyrus Pyle,	120.	25.	....	1.25
4	F. M. Bassett,	120.	28.	1.75	....
5	Heydenreich Brothers,	160.	40.	5.	....
6	W. H. Douglass,	185.	45.	4.53	....
7	Kitchen's Pharmacy,	160.	45.	10.	....

Second Table.

Number.	Names.	Amount of Rochelle Salt.	Amount of Bicarbonate of Soda.	Sulphate of Baryta.
		Grains.	Grains.	Grains.
1	G. C. Leys,	75.	24.88	None.
4	F. M. Bassett,	72.	26.74	None.
5	Heydenreich Brothers,	72.75	26.74	None.

Explanatory Remarks.

No. 1, from G. C. Leys, was labelled "Extra Seidlitz Powders, put up fresh daily." Your reporter thinks the latter is doubtful.

No. 2, from Weber Brothers, was labelled "Seidlitz Powders, extra large."

All those from this city examined were free from sulphates.

CINCINNATI, OHIO.—First Table.

Number.	Names.	Weight of Seidlitz Mixture.	Weight of Tartaric Acid.	Amount of Tartaric Acid in excess.	Amount of Tartaric Acid deficient.
		Grains.	Grains.	Grains.	Grains.
1	F. E. Suire & Co.,	196.	68.	20.12	....
2	M. M. Yorston,	130.	32.	3.56	....
3	A. B. Merriman& Co ,	150.	20.	....	12.81
4	H. Waffenschmidt,	82.	30.	12.06	....
5	R. F. Eisenlohr,	106.	33.	9.81	....

Second Table.

Number.	Names.	Amount of Rochelle Salt.	Amount of Bicarbonate of Soda.	Sulphate of Baryta.
		Grains.	Grains.	Grains.
2	M. M. Yorston,	70.5	19.10	Not weighed
3	A. B. Merriman & Co.,	67.5	20.	Not weighed
5	R. F. Eisenlohr,	60.	34.12	Trace.

Explanatory Remarks.

No. 4, from H. Waffenschmidt, proved the poorest of all the samples received.

No. 5, from R. F. Eisenlohr, besides being scant, contained additional bicarbonate of soda, and the Rochelle salt of poor quality.

WILMINGTON, DEL.—First Table.

Number.	Names.	Weight of Seidlitz Mixture.	Weight of Tartaric Acid.	Amount of Tartaric Acid in excess.	Amount of Tartaric Acid deficient.
		Grains.	Grains.	Grains.	Grains.
1	John Gallagher,	175.	54.	15.75	....
2	Ph. H. Wood,	100.	52.	30.12	....
3	Dr. Foster,	160.	30.	....	5.
4	E. Bringhurst & Co.,	120.	20.	....	6.25
5	Edward McInall, Jr.,	170.	21.	....	16.19
6	Smith & Prynter,	140.	35.	4.38	....

Second Table.

Number.	Names.	Amount of Rochelle Salt.	Amount of Bicarbonate of Soda.	Sulphate of Baryta.
		Grains.	Grains.	Grains.
1	John Gallagher,	73.5	23.40	Not weighed
2	Ph. H. Wood,	64.5	30.56	7.
4	E. Bringhurst & Co.,	72.	24.83	Not weighed

Explanatory Remarks.

No. 2, from Ph. H. Wood is inexcusable.

No. 5, from Edward McInall, Jr., would do well to administer when great acidity exists in the stomach, provided they are given in divided doses.

ALEXANDRIA, VA.—First Table.

Number.	Names.	Weight of Seidlitz Mixture.	Weight of Tartaric Acid.	Amount of Tartaric Acid in excess.	Amount of Tartaric Acid deficient.
		Grains.	Grains.	Grains.	Grains.
1	Clarridge & Grigg,	130.	40.	11.56	....
2	Warfield & Hall,	107.	26.	2.60	....
3	E. S. Leadbeater & Co.,	150.	35.	2 19	....
4	James Entwisle, Jr.,	132.	27.	....	1.88
5	Dr. Gibson,	145.	30.	....	1.72
6	S. W. Lamb,	172.	35.	....	2.62
7	Janney & Co.,	117.	27.	1.40	....
8	Cook & Creichton,	122.	23.	....	3.69

Second Table.

Number.	Names.	Amount of Rochelle Salt.	Amount of Bicarbonate of Soda.	Sulphate of Baryta.
		Grains.	Grains.	Grains.
1	Clarridge & Grigg,	70.5	25.78	Not weighed
3	E. S. Leadbeater & Co.,	69.	30.56	Not weighed
8	Cook & Creichton,	65.5	28.65	Not weighed

Explanatory Remarks.

All from this Southern city examined contained sulphates, and the last two a large proportion of bicarbonate of soda.

INDIANAPOLIS, IND.—First Table.

Number.	Names.	Weight of Seidlitz Mixture.	Weight of Tartaric Acid.	Amount of Tartaric Acid in excess.	Amount of Tartaric Acid deficient.
		Grains.	Grains.	Grains.	Grains.
1	E. A. Cobb,	150.	28.	....	4.81
2	Harkit & Morris,	130.	30.	1.56	....
3	Moody Brothers,	144.	35.	3.5	....
4	W. A. & J. N. Pattison,	129.	35.	6.78	....
5	Stewart & Morgan,	112.	30.	5.5	....

Second Table.

Number.	Names.	Amount of Rochelle Salt.	Amount of Bicarbonate of Soda.	Sulphate of Baryta.
		Grains.	Grains.	Grains.
3	Moody Brothers,	75.	24.83	None.
5	Stewart & Morgan,	66.	26.74	Trace.

Explanatory Remarks.

No. 5, from Stewart & Morgan, is a rather poor specimen of seidlitz powder.

JERSEY CITY, N. J.—First Table.

Number.	Names.	Weight of Seidlitz Mixture.	Weight of Tartaric Acid.	Amount of Tartaric Acid in excess.	Amount of Tartaric Acid deficient.
		Grains.	Grains.	Grains.	Grains.
1	R. C. Blackwell,	205.	60	16.15	....
2	Doyle & Ewing,	145.	25.	....	6.72
3	Demott & White,	150.	35.	2.19*	....
4	O. B. Whithead,	195.	50.	7.84	....
5	Johnson,	160.	50.	15.	....

Second Table.

Number.	Names.	Amount of Rochelle Salt.	Amount of Bicarbonate of Soda.	Sulphate of Baryta.
		Grains.	Grains.	Grains.
2	Doyle & Ewing,	70.5	28.65	None.
3	Demott & White,	60.	38.20	Trace.
5	Johnson,	64.5	30.56	Trace.

Explanatory Remarks.

No. 3, from Demott & White, and No. 5, from Johnson, contained large quantities of bicarbonate of soda.

MILWAUKEE, WIS.—First Table.

Number.	Names.	Weight of Seidlitz Mixture.	Weight of Tartaric Acid.	Amount of Tartaric Acid in excess.	Amount of Tartaric Acid deficient.
		Grains.	Grains.	Grains.	Grains.
1	Baumbach & Gerhardy,	93.	43.	22.65	....
2	J. N. Morton,	145.	43.	11.28	....
3	A. H. Woodruff,	146.	49.	17 6	....
4	J. H. Tesch & Co.,	132.	51.	22.12	....
5	L. H. Wehmer,	128.	32.	4.	....
6	G. W. Swift,	120.	43.	16.75	....
7	J. M. Alcott,	120.	20.	....	6.25

Second Table.

Number.	Names.	Amount of Rochelle Salt.	Amount of Bicarbonate of Soda.	Sulphate of Baryta.	Rochelle Salt replac'd by Tartrate of Soda.
		Grains.	Grains.	Grains.	Grains.
2	J. N. Morton,	73.5	22.92	Not weighed	.....
3	A. H. Woodruff,	75.	24.83	Trace.	.....
4	J. H. Tesch & Co.,	70.5	28.65	None.	.....
5	L. H. Wehmer,	54.	33.42	Trace.	12.

Explanatory Remarks.

No. 1, from Baumbach & Gerhardy, is another inexcusable seidlitz powder; *only* over 22½ grains of acid in excess.

No. 4, from J. H. Tesch & Co., is over weight in bicarbonate of soda, though not sufficiently to neutralize the enormous excess of tartaric acid.

No. 5, from L. H. Wehmer, by supersaturation gave a yield of cream of tartar which was eight grains short, owing to the deficiency of potassa in the Rochelle salt, replaced by tartrate of soda; to the filtrate from the precipitated cream of tartar an addition of bicarbonate of potassa was made, and precipitated with acetic acid, which yielded an additional precipitate of cream of tartar, and indicated the amount of neutral tartrate of soda which was substituted for Rochelle salt.

DETROIT, MICH.—First Table.

Number.	Names.	Weight of Rochelle Salt.	Weight of Tartaric Acid.	Amount of Tartaric Acid in excess.	Amount of Tartaric Acid deficient.
		Grains.	Grains.	Grains.	Grains.
1	Hutlers (?),	98.	42.	20.56	....
2	John H. Griffith,	148.	30.	....	2.38
3	F. Stearns,	135.	40.	10.47	....
4	William Johnston,	164.	52.	16.12	....
5	Sickler,	100.	40.	18.12	....

Second Table.

Number.	Names.	Amount of Rochelle Salts.	Amount of Bicarbonate of Soda.	Sulphate of Baryta.
		Grains.	Grains.	Grains.
2	John H. Griffith,	70.5	24.83	Not weighed
3	F. Stearns,	72.	24.83	Not weighed
4	W. Johnston,	63.	24.83	Not weighed

Explanatory Remarks.

No. 1, from Hutlers, and No. 5, from Sickler, are additional specimens of bad seidlitz powders.

All from this city except No. 2 have a large excess of tartaric acid.

LOUISVILLE, KY.—First Table.

Number.	Names.	Weight of Seidlitz Mixture.	Weight of Tartaric Acid.	Amount of Tartaric Acid in excess.	Amount of Tartaric Acid deficient.
		Grains.	Grains.	Grains.	Grains.
1	George A. Newman,	138.	35.	4.81	....
2	Blandford,	150.	26.	....	6.81
3	J. W. Seaton,	120.	18.	....	8.25
4	C. Louis Diehl,	170.	35.	....	2 19
5	F. S. Dawes,	164.	40.	4.12	....

Second Table.

Number.	Names.	Amount of Rochelle Salt.	Amount of Bicarbonate of Soda.	Sulphate of Baryta.
		Grains.	Grains.	Grains.
1	George A. Newman,	64.5	34.38	Not weighed
4	C. Lewis Diehl,	71.25	28.65	None.

DENVER, COL.—First Table.

Number.	Names.	Weight of Seidlitz Mixture.	Weight of Tartaric Acid.	Amount of Tartaric Acid in excess.	Amount of Tartaric Acid deficient.
		Grains.	Grains.	Grains.	Grains.
1	W. S. Cheesman,	190.	35.	....	6.56
2	Steinhauer & Walbrack,	144.	40.	8.81	....

Second Table.

Number.	Names.	Amount of Rochelle Salt.	Amount of Bicarbonate of Soda.	Sulphate of Baryta.
		Grains.	Grains.	Grains.
1	W. S. Cheesman,	69.75	28.65	None.
2	Steinhauer & Walbrach,	72.	24.83	2.5

Explanatory Remarks.

No. 1, from W. S. Cheesman, is bought of Tarrant & Co., New York.

Dispensing pharmacists should discard buying seidlitz powders or the mixture of wholesale houses.

LONDON, CANADA.—First Table.

Number.	Names.	Weight of Seidlitz Mixture.	Weight of Tartaric Acid.	Amount of Tartaric Acid in excess.	Amount of Tartaric Acid deficient.
		Grains.	Grains.	Grains.	Grains.
1	B. A. Mitchell, ...	147.	48.	15 84	. . . .
2	John Williams, ...	160.	53	17.	. . . .

Second Table.

Number.	Names.	Amount of Rochelle Salt.	Amount of Bicarbonate of Soda.	Sulphate of Baryta.
		Grains.	Grains.	Grains.
1	B. A. Mitchell, ...	72.75	26.74	None.
2	John Williams, ...	71.25	28.65	None.

HAMILTON, CANADA.—First Table.

Number.	Names.	Weight of Seidlitz Mixture.	Weight of Tartaric Acid.	Amount of Tartaric Acid in excess.	Amount of Tartaric Acid deficient.
		Grains.	Grains.	Grains.	Grains.
1	A. Hamilton & Co., ...	178.	40.	1.06	. . . .
2	T. Bickle & Son, ...	120.	38.	11.75	. . . .
3	William G. Stark, ...	195.	39.	. . . .	3.65

Second Table.

Number.	Names.	Amount of Rochelle Salt.	Amount of Bicarbonate of Soda.	Sulphate of Baryta.
		Grains.	Grains.	Grains.
1	A. Hamilton & Co., ...	71.25	28.65	None.
2	T. Bickle & Son, ...	75.	24.83	None.

TORONTO, CANADA.—First Table.

Number.	Names.	Weight of Seidlitz Mixture.	Weight of Tartaric Acid.	Amount of Tartaric Acid in excess.	Amount of Tartaric Acid deficient.
		Grains.	Grains.	Grains.	Grains.
1	E. Hooper & Co.,	220.	44.	....	4.12
2	W. Broydan,	167.	40.	3.47	....
3	Shapter & Owen,	124.	36.	8.88	....
4	H. J. Rose,	126.	35.	7.44	....

Second Table.

Number.	Names.	Amount of Rochelle Salt.	Amount of Bicarbonate of Soda.	Sulphate of Baryta.
		Grains.	Grains.	Grains.
1	E. Hooper & Co.,	75.	24.83	None.
2	W. Broydan,	75.	24.83	None.

Explanatory Remarks.

All those received from Canada were made of good materials, and free from impurities.

Thanks are due to all the parties who kindly aided the reporter in forwarding samples.

APPENDIX.

SOUTH CAROLINA PHARMACY ACT.

*A Bill to amend the law in relation to the license and registration of Pharmaceutists, Apothecaries, and Druggists, and to regulate the vending of Drugs and Poisons.**

Be it enacted by the Senate and House of Representatives of the State of South Carolina, now met and sitting in General Assembly, and by the authority of the same:

SECTION 1. That from and after the passage of this act, the Medical Faculty of the University of South Carolina, shall possess and exercise all the powers heretofore given and now possessed by the Faculty of the Medical College of Charleston, in respect to the examination and license of pharmaceutists, apothecaries, and druggists: *Provided*, That this section be construed as in no wise diminishing the powers of the Faculty last named; but as giving to the Faculty first named the same powers, and also imposing thereon the duty and obligation to exercise such powers upon due application.

SECTION 2. That any pharmaceutist, apothecary, or druggist who carries on and conducts the business of such occupation in this State, after the expiration of six months from the passage of this act, must have a license therefor from one of the above-named bodies. And any person who shall thereafter carry on and conduct the business of said occupations, or any of them, without such license shall be liable to indictment as for a misdemeanor, and, on conviction, to a fine not exceeding five hundred dollars, or imprisonment, not exceeding six months.

SECTION 3. That before granting said license, except in the cases hereinafter excepted, each applicant therefor shall undergo an examination by and before that body to which the application is made, and of such nature as they shall require; but such examination must include the reading of manuscript prescriptions and explanations thereof, the discovery or detection of unusual doses of drugs, and especially of poisons, the recognition and distinguishing of the various roots, barks, leaves, fruits, resins, and gums, in common use, and the proper antidotes and mode of administration thereof for the different poisons.

---

* A copy of this bill was sent by Mr. E. H. Heinitsh, Columbia, S. C., but arrived too late to be printed with the Report on Legislation.—EDITOR.

SECTION 4. That no examination shall be required in case the applicant is a regular graduate in medicine or pharmacy of a school that is on the *ad eundem* of the University of South Carolina, but such an applicant shall be entitled to a license, upon furnishing evidence of his graduation satisfactory to the said Faculty.

SECTION 5. That it shall be the duty of the Medical Faculty of the said University to establish, carry on, and preserve, in a book to be kept for that purpose, a register of all pharmaceutists, apothecaries, and druggists in the State, including the names of persons registered, place of business, the fact whether the person registered be a graduate of medicine and pharmacy, or whether under license granted on examination, and any other matter of information the said Faculty may see fit to add.

SECTION 6. That it shall be the duty of all licensed pharmaceutists, apothecaries, and druggists by whichsoever body licensed to have their names registered in manner aforesaid by the Medical Faculty of the University of South Carolina, and to report annually, on or before the first day of November of each year, to the said Medical Faculty of the said University, whether any, and if yea, what change has occurred within the then preceding year, as to their respective places of business, and for omission or neglect of the requirements of this section, or any of them, they shall, respectively, incur a fine of twenty-five dollars; and for each and every registration or change thereof, the party so registered shall pay to the said Faculty of the University the sum of one dollar, which shall be their compensation for the services performed in accordance with the provisions of this Act.

SECTION 7. That it shall be the duty of the Medical Faculty of the University of South Carolina to make a correct report to the General Assembly of work done by them, in accordance with the provisions of this Act, on or before the first day of December in each year.

SECTION 8. That every pharmaceutist, or other person selling any poison, shall be satisfied that the purchase is made for legitimate purposes, and shall keep a book in which shall be recorded every sale of the following articles, viz.: Arsenic, and its preparations, all metallic cyanides and cyanides of potassium, tartar emetic, corrosive sublimate, aconite and its preparations, strychnine, and all other poisonous alkaloids and their salts; cantharides, ergot, hydrocyanic acid; the said record also to exhibit the name of the person to whom sold, place of his residence and purpose of purchase, as stated, which book shall be kept at all times subject to inspection by the Coroner of the County and Solicitor of the Circuit, or such other persons as either of them may designate.

SECTION 9. That all persons in this State engaged in business as pharmaceutists, apothecaries, or druggists, in either the wholesale or retail of drugs, shall, to every bottle, vial, box, or other package containing any poison named in the preceding section, or any, one or more of the following articles, viz., Oxalic acid, chloroform, belladonna, and its preparations, opium, and all its preparations, except paregoric, digitalis, and its preparations, henbane, and its preparations, hemlock or conium, or any other article that may be added to this list by said Faculty of the University, securely attach a label, whereon

shall be either printed or legibly written with red ink, the name of the poison and the name of at least one antidote, with brief directions as to the mode of using the same: *Provided*, That nothing herein contained shall be construed to apply to the filling of prescriptions made by regular physicians: *And provided further*, That it shall be the duty of the examining body on application at the time of registrature to furnish to the party registering a form of labels for poisons.

SECTION 10. That this act shall not be construed to prevent merchants and shopkeepers from vending or exposing to sale medicines already prepared: *Provided*, Such merchant and shopkeepers shall attach to the articles sold a copy of the label attached thereto by wholesale druggists, and in the sale of poisons shall comply with the provisions of Sections 8 and 9 of this Act.

SECTION 11. That it shall not be lawful for the proprietor of any pharmaceutical shop to allow any person not qualified, in accordance with the provisions of this act, to dispose of poisons or compound the prescriptions of physicians, and any person who, upon indictment for a violation of this section, shall be convicted of the same, shall pay a fine not exceeding five hundred dollars, or suffer imprisonment for the period of not more than six months.

SECTION 12. That it shall be the duty of the Secretary of State to cause this act to be published three times in a newspaper in each county in which a newspaper is printed, and in those counties in which there is no newspaper, he shall furnish to the Coroner a copy of this act to be posted by him on the court-house door of said county.

THE SIGNAL SERVICE OF THE UNITED STATES.

BY resolution passed at the second session of the Twentieth Annual Meeting (see page 57), the Secretary and Executive Committee were authorized to have sketches made of the daily meteorological reports, with a brief note of explanation of the way in which these observations are made. The Secretary addressed to the Chief Signal Officer, Albert J. Myer, Brigadier-General U. S. A., the thanks of the Association for the weather-maps sent, and acquainted him with the wishes of the Association.

At the suggestion of the Chief Signal Officer it was concluded to adopt for publication with the Proceedings a reduced size of the meteorological maps issued by his office, and the Secretary was kindly allowed to procure a sufficient number of copies of the official issues of these maps for one day (October 9th, 1872) and also of the meteorological record, synopsis, probabilities, and facts published with the same maps. These documents will be found with the present volume for the general information of the members.

To comply with the last portion of the resolution above referred to, the Secretary requested from the Chief Signal Officer such information as he might deem proper for the purpose, and received in reply a copy of the "Annual

Report of the Chief Signal Officer to the Secretary of War, for the Fiscal Year ended June 30, 1871." This document is a volume of 160 pages, containing, besides the account of the operations of the signal service, many interesting essays on meteorological subjects, and on the details of the observations as systematized by the Chief Signal Officer. From these essays the following are here republished as furnishing a pretty correct idea of the manner in which the work is performed, although these extracts cannot be expected to do full justice to the labor performed or to the patient research which is necessary to generalize the observations at fifty or sixty localities, so as to deduce therefrom the forecasts of the weather, or "probabilities," as they have been styled, for the whole country.

The Practical Use of Meteorological Reports and Weather-Maps.

In pursuance of the duty imposed upon the Secretary of War by the law providing for the announcement by telegraph and signal of the approach and force of storms, and under his direction, the office of the Chief Signal Officer of the Army, at the War Department, causes meteorological observations and reports to be made daily and nightly at 55 stations.

The office division of telegrams and reports for the benefit of commerce is organized for the preparation, receipt, and use of these reports.

At every station three observations are taken daily at the same moment of actual (not local) time for all stations, by the observer-sergeants of the signal service. The reports are immediately telegraphed to the office of the Chief Signal Officer, at Washington.

By a carefully arranged system of telegraphic operation, copies of the full reports of all stations thus transmitted to Washington, or of portions of them, are sent at the same time to many of the signal service stations in principal cities and towns.

At each station so receiving a tabular report, one or more bulletins are published. The observations are made synchronously at the different stations at the exact hours, 7.35 A.M., 4.35 P.M., and 11.35 P.M., Washington time.

The full reports from all stations are telegraphed to, and received at, Washington, translated from cipher, and published in the form of bulletins of reports by the hours of 9 A.M., 6 P.M., and 1 A.M., respectively (Washington time). The bulletins of reports are designated as follows: That published at 9 A.M., the Morning Report; that published at 6 P.M., the Afternoon Report, and that published at 1 A.M., the Midnight Report. The bulletins, wherever published, at Washington or elsewhere, exhibit the following particulars, viz.: Height of barometer; change since last report; thermometer; change in last twenty-four hours; relative humidity in per cent.; direction of wind; velocity of wind, in miles, per hour; pressure of wind, in pounds, per square foot; force of wind; amount of cloud; rain-fall since last report, in inches and hundredths; and state of weather.

The following places, now occupied as stations of this division, were selected as of most immediate importance for meteorological purposes, and possessing telegraphic facilities. Those which are gradually to be added during this

year are already designated by the Secretary of War, for similar reasons, with a design to perfect the network of the system so far as the appropriations allow.

*Portland, Maine.
*Boston, Massachusetts.
*New London, Connecticut.
*New York City, New York.
*Philadelphia, Pennsylvania.
*Baltimore, Maryland.
*Washington, District of Columbia.
*Wilmington, North Carolina.
*Charleston, South Carolina.
*Savannah, Georgia.
*Augusta, Georgia.
Lake City, Florida.
Key West, Florida.
*Mobile, Alabama.
*New Orleans, Louisiana.
San Francisco, California.
*Duluth, Minnesota.
*Pittsburg, Pennsylvania.
Knoxville, Tennessee.
*Indianapolis, Indiana.
Lynchburg, Virginia.
Burlington, Vermont.
*Keokuk, Iowa.
*Grand Haven, Michigan.
*Vicksburg, Mississippi.
Escanaba, Michigan.
Marquette, Michigan.
*Davenport, Iowa.
*Leavenworth, Kansas.
*Cairo, Illinois.
*Cape May, New Jersey.
*Galveston, Texas.
*Norfolk, Virginia.
Mt. Washington, New Hampshire.
Jacksonville, Florida.
*Oswego, New York.
*Rochester, New York.
*Buffalo, New York.
*Cleveland, Ohio.
*Toledo, Ohio.
*Detroit, Michigan.
*Chicago, Illinois.
*Milwaukie, Wisconsin.
*St. Paul, Minnesota.
*Montreal, Canada.
Punta Rassa, Florida.
*Memphis, Tennessee.
*Nashville, Tennessee.
*Cincinnati, Ohio.
*St. Louis, Missouri.
Omaha, Nebraska.
Cheyenne, Wyoming Territory.
Corinne, Utah.
Shreveport, Louisiana.
*Louisville, Kentucky.

At those places marked with a star, the number of reports received and published in the bulletin is sufficiently large to permit them to be used in the manner pointed out in this paper. The remaining stations, either on account of special reasons connected with their locality, or of those relating to the telegraphic system, are now chiefly used as reporting stations.

The morning and afternoon reports (bulletins) are posted at each of the local signal service offices, and at a number of other public places in the cities and towns to which they are transmitted.

They are always open for examination. At the more prominent stations, and those in principal cities, large weather-maps are also posted every morning, exhibiting, by means of changeable symbols, the reports of the morning observations at the different stations. The midnight report (bulletin) is gratuitously furnished to every morning newspaper published in the city at which a station of observation may be, which will insert it in its columns. The morning report is also delivered to afternoon papers in time for publication.

The observers at each station are instructed to afford every facility to the

press and to the public for the earliest receipt and most extended use of the reports and information at their respective offices.

In addition to the bulletins, a statement of synopses and probabilities is prepared at the office of the Chief Signal Officer, and thence issued thrice daily. It is immediately furnished to the Associated Press, by which it is telegraphed to all its agencies throughout the country.

The synopses and probabilities, with which the public is familiar through the columns of the different newspapers, are issued from the office of the Chief Signal Officer at 1 A.M., 10 A.M., and 7 P.M., daily.

In the study of local probabilities, the student should make sure that he has before him (as in the columns of the local newspaper) the latest synopses and probabilities issued at Washington. To be sure of such facts he must notice the hours at which they are dated from the office in Washington. *The midnight reports, dated at* 1 A.M. *of each day, ought to be found in the morning newspapers of that day; the morning reports, dated at* 10.30 A.M. *of each day, is furnished in time for the afternoon and evening papers.*

At places where stations are established, the use of the bulletined reports in the mode suggested in this paper would often, perhaps, enable the student to make forecasts of the weather with greater local particularity than can be expressed in the "synopses and probabilities" telegraphed to the press, as the latter must, in a limited number of words, give generalizations embracing the whole country. And it is believed that, in many places distant from any station, but on or near the lines of railways or steamers, or with other modes of rapid communication, the bulletins can be utilized in a corresponding manner. *If, at the station nearest to persons interested, as, for instance, the board of trade, or chamber of commerce, or the meteorological committee of an agricultural society, or individuals interesting themselves in the study of practical meteorology, no newspaper prints the bulletins furnished gratuitously by this office for that purpose, there is a strong probability that, upon proper application made to the editors or proprietors, they would be printed as of interest to the subscribers and readers.* In cases where delay would thereby be avoided, arrangements can often be made with the publisher to have copies of the newspaper containing bulletins sent in advance of its delivery by mail. By such means, and others which will suggest themselves, a record of meteorological conditions elsewhere can be obtained in many places within so few hours after the observations are taken at the different stations, as to enable a student to make for himself many important deductions. The accuracy of these would be greatly assisted by local observations made at the same time as those of the observers of this division, with similar instruments, and by frequent local observations made during any time at which there is especial interest or anxiety as to the probable weather.

The navigator, the agriculturist, or the student, can supplement in this way, by the readings of his own instruments and his local knowledge, the reports and information furnished by the United States, and is fitted to arrive at intelligent conclusions as to the data before him.

There is yet no provision for furnishing instruments, on the part of the United States, to any other than the observer-sergeants, although it is possible

that some such authority may hereafter be given. Full information as to the instruments and their use will, however, be furnished to all persons who may provide them for themselves.

In addition to the weather bulletins and the "synopses and probabilities," a graphic weather-chart or map is issued thrice daily from the office of the Chief Signal Officer of the Army, at the War Department. To those who know how to use them, all of these reports offer valuable help in estimating the probable character of the weather at any station or over any district during the following day, and often for a still longer period. The bulletins and graphic charts, properly filled, convey the same information, with this difference, while the former merely tabulates the reports alphabetically, the latter reveals to a single glance of the eye a synoptic view, at once of the meteoric conditions at the different stations, and of the deductions thence to be made as to the conditions of the atmosphere then extending over the continent.

The graphic charts are of additional value, from the fact that it is often possible to trace upon them, in lines, the progress of storms or the change of meteoric condition (as the movement of an area of high or low barometer), from report to report, and thus by considering the past, and by applying laws and generalizations reasonably well established, to estimate more easily the "probability" of the future.

Those who receive the bulletin through the newspapers, or otherwise, can, if they desire, so easily transfer its information to the blank charts that the reader is supposed to be in possession of, or familiar with, a series of such weather-maps.

As the anticipation of dangerous winds is at present the most important subject for examination, the following remarks are made with the view of directing the attention to those matters that are considered to have a direct bearing upon the subject of storms and gales in the United States. The study of the science of meteorology and of the theories that have been formed to explain the complicated phenomena that are daily presented in our atmosphere will be but lightly touched upon, since persons of education are already in possession of sufficient inductive generalizations to give a fair insight into the actual nature of the changes that are taking place at every hour of the day.*

Abbreviations used in the Press Reports.

It may be well to state here that in the weather synopses and probabilities emanating from the Signal Office, different parts of the country are thus designated:

Maine, New Hampshire, Vermont, Massachusetts, Connecticut, and Rhode Island are alluded to as the *New England States*, or the *Northeast*, or simply as the *Eastern* States.

---

* Blank charts on which to enter observations can be obtained from the office of the Chief Signal Officer, at Washington, D. C., at actual cost ($2.75 per hundred), and will be sent by mail, free of other expense, to applicants.

New York, New Jersey, Pennsylvania, Maryland, District of Columbia, and Virginia, as the *Middle States*, or sometimes as the *Middle Atlantic States*.

North Carolina, South Carolina, Georgia, and Northern and Eastern Florida, as the *South Atlantic States*.

Western Florida, Alabama, Mississippi, Louisiana, and Texas, as the *Gulf States*.

Sometimes the Gulf States, the South Atlantic, Virginia, Tennessee, Kentucky, and Arkansas are grouped together as the *Southern States*.

The Lower Lakes, when used, means Lakes Erie and Ontario.

The Upper Lakes are Lakes Superior, Huron, and Michigan.

The Northwest, popularly, means the country lying between the Mississippi and the Missouri Rivers.

The Southwest means Texas, Indian Territory, and New Mexico.

Pacific Coast, or *Pacific States*, includes California, Oregon, and Washington Territory.

The *Ohio Valley* includes the belt of country about two hundred miles broad from Pittsburg to Cairo.

The *Mississippi Valley* includes a belt of about the same width, from Vicksburg to Davenport.

The extensions from Missouri to Ohio, &c., refer to areas reaching to and including the central portions of the States named. Thus, a report "westerly winds extending from Iowa to Pennsylvania," would convey that those winds would be felt in the interior of those States, as well as over the territory lying between them of the respective States.

In *the coasts*, &c., is included the land between the coasts and the parallel range of coast-hills or mountains. In Texas, Louisiana, and Northern Florida, a belt of land extending a hundred miles inward would be included.

Winds are said to blow from northeast when they are generally included within the quadrant from north to east, &c., and similarly for other directions.

The Graphic Weather-Map.

A weather-map should be made out as often as a bulletin is received, and it is a very great advantage to be able to do this thrice daily; one map every day is the least that can be usefully studied. It is found best to preserve the maps in books of a hundred or so, they being very exactly superposed upon each other.

Owing to the translucency of the paper on which they are printed, it is generally possible to see through several of the sheets, and thus more easily compare the successive phases of the weather.

The record for each station should be entered in its appropriate place; the wind and weather may be easily indicated by arrows and black or white circles.

All the entries being made with a black lead-pencil, the whole operation will barely consume fifteen minutes.

Auxiliary charts of the same size should be at hand, on which are entered

the isobarometric* and isothermal lines for the month, and such other data as need to be continually borne in mind.

Especially important is it that the eye should be familiar with the ordinary charts of physical geography, on which are pictorially given the belts of trade-winds and the anti-trade winds, the mountainous and alluvial regions, the plateaus, &c., and it should be borne in mind that the climatic belt continually moves up and down on the earth's surface with the sun's apparent annual motion. Relief-maps, or orographic charts, showing pictorially the face of the country whose meteorology is studied, will add the liveliest interest and clearness to the investigation.

It is probable that elementary charts showing the principal topographical and meteorological features of North America, and on precisely the same scale as the weather-map, will be eventually published by the office of the Chief Signal Officer, but for the present the desired information may be obtained from such works as Keith Johnston's Physical Atlas, Guyot's, Cornell's, or Maury's Physical Atlas and Geography, Buchan's Meteorology, and his essay on the Distribution of Atmospheric Pressure, Blodgett's Climatology of the United States, Coffin's Winds of the Northern Hemisphere.

The manner of tracing isobarometric lines on the *weather-map* is this:

1. Record with a lead-pencil in small plain figures at each station the height of barometer as given in the report.

2. Find the location of *lowest* barometer—say 29.45. Draw a line with red pencil through those stations where the barometer stands between 29.45 and 29.55; mark this line at each end, or in two or three places, 29.50. Then take the height at 29.55 to 29.65; trace a line in the same way as before, marking it 29.60; continue this until the highest barometer is reached.

By tracing the line of the map of the previous observation, showing through the translucent current one with *blue* (or dotted red over), the difference in location of the area of lowest pressure, and the changes since last report, also the direction in which the storm (if there be one) is moving, and the rate at which it is progressing, are readily shown.

The Cautionary Signal.

[Circular.]

War Department, Office of Chief Signal Officer,
Division of Telegrams and Reports for the Benefit of Commerce,
Washington, D. C., October 25, 1871.

The cautionary signal of the signal service, United States Army—a red flag with black square in the centre by day, and a red light by night—displayed at the office of the observer, and other prominent places throughout any city, signifies:

1. That, from the information had at the central office in Washington, a probability of stormy or dangerous weather has been deduced for the port or place at which the cautionary signal is displayed, or in that vicinity.

---

* Isobarometric (sometimes abbreviated to isobaric lines, or isobars) means lines along which the mercurial column indicates equal pressure.

2. That the danger appears to be so great as to demand precaution on the part of navigators and others interested—such as an examination of vessels or other structures to be endangered by a storm—the inspection of crews, rigging, &c., and general preparation for rough weather.

3. It calls for frequent examination of local barometers and other instruments by ship-captains, or others interested, and the study of local signs of the weather, as clouds, &c. By these means those who are expert may often be confirmed as to the need of the precaution to which the cautionary signal calls attention, or may determine that the danger is overestimated or past.

ALBERT J. MYER,
Brigadier-General and Chief Signal Officer, U. S. A.

THE CAUTIONARY SIGNAL.

This red flag or red light (the cautionary signal) is displayed when the information in possession of the office leads to the belief that dangerous winds are approaching.

The term dangerous winds has ordinarily a somewhat different meaning, according to the location of the station. Thus the severe gales of the Atlantic (where the hourly velocity of the wind ranges from forty to seventy miles) are comparatively very rare on the lakes, where the limited sea-room causes winds that on the neighboring shores are registered only as brisk (*i. e.*, fifteen to twenty-five miles) to become dangerous. Again, the direction in which the wind is blowing is a most important consideration, and as general experience shows that most danger is apprehended from wind blowing on to a lee shore, the cautionary signal may very properly be expected to be hoisted only in case such winds are apprehended for the port in question.

For inland and well-sheltered points, however, as Baltimore and Philadelphia, this distinction cannot be easily made, and in order to avoid the confusion that might very possibly arise from the display of different signals at adjacent ports, such as Milwaukee and Grand Haven, Detroit and Toledo, &c., it has been decided for the present, at least, not to put into practice the above suggestion. The cautionary signal will therefore be hoisted whenever the winds are expected to be as strong as twenty-five miles an hour, and to continue so for several hours within a radius of one hundred miles of the station. It will thus be left to the public individually to decide whether that wind will be dangerous to any special occupation. It is hoped that eventually it will be practicable to add a second signal, giving warning of severe gales. Each signal holds good for the space of about eight hours from the time at which it is hoisted. When no signal is displayed it indicates that the office has no knowledge of any approaching danger, and as this is not only the case when there is really no danger, but also in many cases may be the consequence of the failure of the telegraphic connection of the central office at Washington with neighboring stations, it should not lead the mariner to be less watchful of the weather, nor to neglect to obtain such weather intelligence as he can from the telegraphic reports at the observer's office. If the mariner desires more exact information as to the nature of the threatening danger, he should

obtain the latest "weather-bulletin," or "weather-map," published by the office, as well as the general "synopses and probabilities," or the so-called "press reports." These can generally be had at the office of the observer.

If he finds that high winds are prevailing within two hundred miles of the port at which he is, he should consider what the disturbing cause is that produces these winds. This may in general be stated to be an excess of barometric pressure over some district and a deficiency over some neighboring region.

If the region of low barometer be very small, the area of violent winds will be correspondingly contracted, as in tornadoes on land. Even if no fall in the barometer be noticed, brisk winds may be experienced, owing to the fact that the air in rapid motion overhead may drag along with it that on the surface of the ground, but in general it may be stated that ninety per cent. of the winds that are dangerous to navigators are accompanied by areas of notably high and low barometer. Now, when the barometer falls over any region the inertia of the surrounding air causes some time to elapse before it is set in motion, and similarly a large mass of air moving with rapidity preserves its motion after the exciting cause is removed. Thus it may happen that strong winds exist in regions at which no barometric disturbance exists at the moment, but has existed a short time previously.

Again, the space inclosing the partial vacuum, into which the wind tends to rush, itself moves slowly over the earth, and thus the wind at any point appears still longer to delay to follow the barometric disturbance. This delay will, of course, vary with the motion of the central area of low pressure, or that of the neighboring high pressure.

The general consequences of the preceding considerations are that the area covered by the weather-chart presents to our view one, two, or three regions of low pressure, and one or two of high, and that between these, but much nearer to the low than the high barometer, we find the strongest winds. As regards the direction of the winds, they may be described as not tending directly to the centre of the area of low pressure, but as circulating around and in upon it in a sinuous spiral, in a direction contrary to the movements of the hands of a watch (when it is laid down with its face upward); thus there are found northerly winds on the west side of the region, westerly ones on the south side, and so around. Of these winds those from the northwest and southwest are more violent, on the average, than those from the southeast and northeast, but the latter may be more dangerous, and, when they pass over smoother ground, may be even stronger at the immediate surface of the earth.

The general tri-daily press report (to be had at observers' offices) contains always a statement of the positions and movements of the larger areas of high and low barometer, of cold and warm weather, or of stormy, cloudy, and clear weather. In the absence of a weather-map, therefore, one can determine in a general way whether these are approaching to or departing from his neighborhood, and this knowledge leads to the following conclusions:

1. If the barometer is very low at the centre, very severe gales may be expected over a large area, say within a circle of two hundred miles radius, from October to April, but within a smaller circle, less than one hundred miles from May to September.

2. Areas of low barometer, when first perceived in Minnesota, may be expected to move eastward in the summer months, with westerly winds on Lake Superior, and to move to the southeast and east-southeast in the fall, with east and northeast winds on Superior and Michigan.

3. When perceived in Nebraska or Indian Territory, they may be expected to move northeast to Lake Ontario, with northeast winds on Superior, Michigan, and Huron.

4. When perceived in Texas, or anywhere on the Gulf coast, they may be expected to move northward to the latitude of 35° or 40°, and there begin to move northeastward, with northeast, north, and northwest winds on the lakes, and subsequently southerly winds on the Middle and East Atlantic coasts.

5. When perceived on the coast of Florida, or off the South Atlantic, they, in the fall, winter, and spring, may be expected to move slowly up the coast, preceded by northeasterly winds and rain.

6. While the preceding sentences mark out the most general average phenomena attending the movement of the disturbing areas of low pressure, it must be borne in mind that but very rarely will the ever-varying atmospherical condition allow any storm to pursue a uniform average course over the earth.

7. The most important condition disturbing the regular movement of a storm is the presence of moist air; that is to say, air nearly saturated with aqueous vapor. Such air is found over extensive forests and marshes, over bodies of warm water, and especially over a field of snow or ice which is being melted by the sun. Toward these regions the areas of low barometer may be expected to be drawn more or less strongly, or at least to spread out over them.

8. When the low barometer on the west of the Appalachian chain of mountains causes easterly winds on the Atlantic coast, these force a mass of air up the western slopes of these hills, and this, as it rises, becomes more and more nearly saturated, so that the low pressure west of the mountains may be expected to be rapidly spread over the range and even transferred, as it were, to the Atlantic coast.

9. Waves of low pressure on the Pacific coast are also transferred across the Rocky Mountains and the elevated plateaus, and may be expected, when they arrive at the Mississippi Valley, to produce cloud and probably storm centres.

10. Besides the disturbing attractions of moist area, we have to consider the contrary influences exerted by areas of dry air, such as are found on the eastern slope of the Rocky Mountains. Where a storm centre is driven into such a region, clouds and weaker winds may be expected, and the storm will gradually die out, unless moist air lies beyond.

11. Besides the forces attracting the areas of low pressure, we have also to consider the pressure of an area of high barometer; this, by causing a system of decidedly strong wind to circulate around it in the anti-cyclonic direction, may drive the storm centre (whether it be a small tornado or an extensive cyclone) before it, so as to undergo quite a change in its path.

12. The general path pursued day after day by a storm centre is indeed the resultant of a system of pressures, some of which arise from the pressures of

areas of high and low barometer, some from areas of moist or heated air, some from winds, and others from the rotation of the earth on its axis; these are the important controlling influences; such others as may arise from lunar tides in the air, &c., &c., are considered at present as of inferior prominence.

13. Whether the observer determines the probable movement of a given storm centre, by means of these general considerations or not, he cannot safely neglect the indications of his own barometer. The experience of the past fifty years has borne uniform testimony to the pre-eminent value of the indications of this instrument, taken in conjunction, of course, with the wind and weather.

14. If it be known that a centre of low pressure is in the neighborhood of the observer, and he stand facing it, he will find the wind blowing from some point on his left, toward some point on his right; and *vice versâ* if he stand with his left hand toward the direction from which the wind comes, he will face the region of lowest pressure. It is better to use, not the direction of the local wind, but that from which the *low* clouds are moving; the *very high* clouds should not be used.

15. If while facing the low pressure he finds the wind steady and his barometer falling, then the central area is advancing directly toward him, and so long as this continues he may expect the wind to increase until the barometer reaches its lowest; then a lull will take place, followed by strong winds from the opposite quarter, which will continue while the barometer is rapidly rising, but subside as it rises more slowly. The strength of the wind may be expected to be in general proportioned to the rapidity of the fall or rise of the barometer.

16. The storm centre has been spoken of as being in front of the observer. It will, however, in general be somewhat more to his right as he stands with his left to the wind.

17. If the wind *veer* (that is to say, gradually change its direction, for instance, from southeast to southwest, or in that order around the compass), the storm centre is passing by on the north side of the observer; if it *backs* (changing, for instance, from southwest to southeast), the centre of lowest pressure is passing by on the south side, and the distance at which it is may be roughly estimated by the rapidity of the fall in the barometer.

18. The severest winds are those, as before stated, on the south and west side of the centre, those on the east side are more frequently squally.

19. In the foregoing the observer has been supposed to be stationary; should he be in motion, however, this will affect especially his observation of the barometer, since he may easily run into or away from an area of low pressure, and he himself must mentally allow for the influence of his motion.

20. In comparing the readings of his own barometer with those published on the bulletin and map of this office the mariner will find that the latter have all been reduced to a uniform sea-level and to a uniform temperature. He, therefore, will find it most convenient to bear in mind the amount of these corrections and to mentally apply them to his own barometer. Should he preserve his records and transmit them to this office, however, the original

uncorrected observations only are desired. The following tables show the general amount of these corrections.

21. An allowance for the temperature of the barometer is made by noting the thermometer attached to that instrument.

For a temperature of	20°	Fahrenheit	add	0.02	inch.
" "	30°	"	"	0.00	"
" "	40°	"	subtract	0.03	"
" "	50°	"	"	0.06	"
" "	60°	"	"	0.08	"
" "	70°	"	"	0.11	"
" "	80°	"	"	0.13	"
" "	90°	"	"	0.16	"
" "	100°	"	"	0.18	"

These numbers are applicable to barometers having brass scales, which are the most reliable ones; aneroid barometers ought not to require any temperature correction.

The correction for altitude above the sea will vary with the annual temperature, but may be approximately made as follows:

	Altitude of water. Feet.	Altitude of barometer. Feet.	Add to barometer. Inch.
For the Ocean,	0	25	0.02
For Lake Champlain,	95	120	0.14
For Lake Ontario,	235	260	0.29
For Lake Erie,	564	590	0.66
For Lake St. Clair,	570	595	0.66
For Lake Huron,	574	600	0.66
For Lake Michigan,	584	600	0.66
For Lake Superior,	600	625	0.69
For the Ohio at Pittsburg,	725	750	0.80
For the Ohio at Cincinnati,	450	475	0.50
For the Ohio at Louisville,	400	425	0.47
For the Ohio at Cairo,	300	325	0.34
For the Missouri at Omaha,	950	975	1.05
For the Mississippi at St. Paul,	650	675	0.74
For the Mississippi at St. Louis,	425	450	0.48
For the Mississippi at Vicksburg,	130	155	0.17
For the Mississippi at New Orleans,	20	50	0.05

LIST OF SOCIETIES, LIBRARIES, JOURNALS, AND INDIVIDUALS,

To whom complimentary copies of the Proceedings of this Association are forwarded.

The State Libraries of all the States of the Union except Connecticut.

Maine Pharmaceutical Association,	Portland,	Maine.
Bowdoin College,	Brunswick,	"
Dartmouth College,	Hanover,	New Hampshire.
Amherst College,	Amherst,	Massachusetts.
Harvard University,	Cambridge,	"
Massachusetts College of Pharmacy,	Boston,	"
City Library,	"	"
" Hospital,	"	"
Boston Athenæum,	"	"
Vermont Pharm. Ass'n, A. W. Higgins, Sec.,	Rutland,	Vermont.
University of Vermont,	Burlington,	"
Brown University,	Providence,	Rhode Island.
Trinity College,	Hartford,	Connecticut.
Yale College,	New Haven,	"
College of Pharmacy of the City of N. Y.,	New York,	New York.
American Druggists' Circular,	"	"
Astor Library,	"	"
Mercantile Library,	"	"
Long Island Historical Society,	Brooklyn,	"
Philadelphia College of Pharmacy,	Philadelphia,	Pennsylvania.
American Journal of Pharmacy,	"	"
College of Physicians,	"	"
Pennsylvania Hospital,	"	"
Academy of Natural Sciences,	"	"
American Philosophical Society,	"	"
Philadelphia Library,	"	"
Mercantile Library,	"	"
American Journal of Medical Sciences,	"	"
Dental Cosmos,	"	"
Maryland College of Pharmacy,	Baltimore,	Maryland.
University of Maryland,	"	"
Smithsonian Institution,	Washington,	Dist. Columbia.
Congressional Library,	"	"

Surgeon-General, U. S. Army,	Washington,	Dist. Columbia.
Columbia Pharmaceutical Association,	"	"
Louisville College of Pharmacy,	Louisville,	Kentucky.
University of Louisiana,	New Orleans,	Louisiana.
Cincinnati College of Pharmacy,	Cincinnati,	Ohio.
" Academy of Medicine,	"	"
Longview Lunatic Asylum,	"	"
University of Michigan,	Ann Arbor,	Michigan.
Chicago College of Pharmacy,	Chicago,	Illinois.
Minnesota State Medical Society, Charles E. Smith, M.D., Secretary,	St. Paul,	Minnesota.
St. Louis College of Pharmacy,	St. Louis,	Missouri.
" Academy of Science,	"	"
" Mercantile Library,	"	"
" Public School Library,	"	"
Kansas College of Pharmacy,	Leavenworth,	Kansas.
Nebraska State Medical Society, V. H. Coffman, M.D., Secretary,	Omaha,	Nebraska.
California Pharmaceutical Society,	San Francisco,	California.
Pacific Medical and Surgical Journal,	"	"
Montreal Chemist's Association,	Montreal,	Canada.
Canadian Pharmaceutical Society,	Toronto,	"

British Pharmaceutical Conference, Dr. J. Attfield, London.
Pharmaceutical Society of Great Britain.
Pharmaceutical Journal and Transactions, London.
Chemical News, London.
Chemist and Druggist, London.
Journal of Applied Science, London.
British Museum, London.
Philosophical Society, Glasgow.
Liverpool Chemists' Association.
Pharmaceutical Society at Edinburgh.
Academie Royale de Médecine, Bruxelles.
Société de Pharmacie Royale de Bruxelles.
Société de Pharmacie d'Anvers, Fr. Vaudelt, Sécrétaire.
Société de Pharmacie, M. Henri Buignet, Sécrétaire, Paris.
Academie des Sciences, Paris.
Journal de Pharmacie et de Chimie, Paris.
Répertoire de Pharmacy, Paris.
Schweizer Apotheker-Verein, Mr. R. Lindt, President, Bern.
Oesterreichischer Apotheker-Verein, Wien.
Oesterreichische Zeitschrift für Pharmacie, Wien.
K. K. Gesellschaft der Aerzte, Dr. Hauke, Secretary, Wien.
K. K. Akademie der Wissenschaften, Wien.
K. Bayer, " " München.
Neues Repertorium für Pharmacie, Prof. Buchner, München.
Vierteljahresschrift " " Prof. Wittstein, München.

Deutscher Apotheker-Verein, Dr. Schacht, Berlin.
Neues Jahrbuch für Pharmacie, Dr. Vorwerk, Speyer,
Archiv der Pharmacie, Waisenhausbuchhandlung, Halle.
Chemisches Centralblatt, Dr. Rud. Arendt, Leipzig.
Jahresbericht über die Fortschritte der Chemie, &c., J. Ricker'sche Buchhandlung, Giessen.
Jahresbericht für Pharmacognosie, Pharmacie und Toxicologie, Prof. Dr. Wiggers, Göttingen.
Annalen der Chemie und Pharmacie, Prof. Dr. Wöhler, Göttingen.
K. Akademie der Wissenschaften, Göttingen.
" " Berlin.
Pharmaceutische Central-Halle, Dr. H. Hager, Berlin.
Pharmaceutische Zeitung, Bunzlau.
Pharmaceutische Gesellschaft in St. Petersburg, Dr. A. Casselmann, St. Petersburg.
Pharmaceutische Zeitschrift für Russland, St. Petersburg.
Pharmaceutisches Institut, Dorpat, Russia.
Pharmaceutical Institution, Stockholm, Sweden.
Kongelige Norske Universitet i Christiania.

LIST OF PUBLICATIONS RECEIVED,

For the American Pharmaceutical Association.

Societies and editors are respectfully requested to forward all publications intended for the American Pharmaceutical Association to the Permanent Secretary. European exchanges, if not sent by mail, will reach us through the Smithsonian Institution at Washington, or through Messrs. B. Westermann & Co., or E. Steiger, booksellers, New York.

JOHN M. MAISCH,
145 North Tenth Street, Philadelphia, Pa.

American Journal of Medical Sciences, Philadelphia, 1872.

Medical News and Library, Philadelphia.

Dental Cosmos, Philadelphia, 1872.

Transactions of the College of Physicians of Philadelphia, 1872.

Journal of Applied Chemistry. New York and Philadelphia, 1872, Nos. 6 to 10.

The Pharmacist, Chicago, 1872.

Pacific Medical and Surgical Journal, San Francisco, 1872.

The Canadian Pharmaceutical Journal. Edited by E. B. Shuttleworth, 1872.

Pharmaceutical Journal and Transactions, London. 1871, September to July, 1872.

The Chemist and Druggist, London, 1872, Nos. 1 to 11.

Bulletin de la Société Royale de Pharmacie de Bruxelles. 1871, No. 12; 1872, Nos. 1 to 10.

Neues Jahrbuch für Pharmacie, Speyer, 1872, Nos. 1 to 7.

Wittstein's Vierteljahresschrift, München, 1872, Nos. 1 to 4.

Buchner's Neues Repertorium, München, 1872, Nos. 1 to 10.

Nachrichten von der K. Gesellschaft der Wissenschaften, &c. Göttingen, 1871.

Pharmaceutische Centralhalle, Berlin, 1872, Nos. 1 to 44.

Archiv der Pharmacie, Prof. Dr. H. Ludwig, Redacteur, Halle, 1871, 1872.

Zeitschrift des allgemeinen oesterreichischen Apotheker-Vereines. Wien, 1872.

Anzeiger der K. Academie der Wissenschaften. Wien, 1872, Nos. 1 to 20.

Pharmaceutische Zeitschrift für Russland. St. Petersburg, 1871, Nos. 6 to 24; 1872, Nos. 1 to 14.

Transactions of the Minnesota State Medical Society, Minneapolis, 1872.

Proceedings of the Nebraska State Medical Society at its Fourth Annual Session, Omaha, 1872.

Eleventh Annual Report of the Librarian of the Maine State Library, Augusta, 1872.

AUTHORIZED AGENTS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

Nominated by the Treasurer and Permanent Secretary, and approved by the President, to carry out the resolution passed at the fifth session of the 18th Annual Meeting.

California,	James G. Steele, 521 Montgomery St.,	San Francisco.
Dist. of Columbia,	Joseph W. Nairn, 901 Pennsylvania Av.,	Washington.
Delaware,	Linton Smith, M.D., 7th & Market Sts.,	Wilmington.
Illinois,	Henry W. Fuller, 24 Market St.,	Chicago.
Kansas,	Robert J. Brown, Fifth & Shawnee Sts.,	Leavenworth.
Kentucky,	C. Lewis Diehl, First & Walnut Sts.,	Louisville.
Louisiana,	John H. Pope, Jackson & Prytania Sts.,	New Orleans.
Maryland,	J. Faris Moore, Howard & Madison Sts.,	Baltimore.
Massachusetts,	Henry W. Lincoln, Charles & Chestnut,	Boston.
Michigan,	William Johnston, 158 Jefferson Av.,	Detroit.
Missouri,	William H. Crawford, 732 Washington Av.,	St. Louis.
New Jersey,	Charles B. Smith, 831 Broad St.,	Newark.
New York,	Daniel C. Robbins, 91 Fulton St.,	New York.
	George C. Close, Smith & Schermerhorn,	Brooklyn.
Ohio,	Hiram H. Hill, Fifth & Race Sts.,	Cincinnati.
Pennsylvania,	Rich'd M. Shoemaker, Fourth & Race Sts.,	Philadelphia.
	Alfred J. Rankin, 45 Sixth St.,	Pittsburg.
Tennessee,	Henry C. Steever, 2d & Madison Sts.,	Memphis.

CONSTITUTION AND BY-LAWS

OF THE

AMERICAN PHARMACEUTICAL ASSOCIATION.

CONSTITUTION.

ARTICLE I. This Association shall be called the "American Pharmaceutical Association." Its aim shall be to unite the educated and reputable Pharmaceutists and Druggists of the United States in the following objects:

1. To improve and regulate the drug market, by preventing the importation of inferior, adulterated, or deteriorated drugs, and by detecting and exposing home adulteration.

2. To encourage proper relations between Druggists, Pharmaceutists, Physicians, and the people at large, which shall promote the public welfare, and tend to mutual strength and advantage.

3. To improve the science and the art of Pharmacy by diffusing scientific knowledge among Apothecaries and Druggists, fostering pharmaceutical literature, developing talent, stimulating discovery and invention, and encouraging home production and manufacture in the several departments of the drug business.

4. To regulate the system of apprenticeship and employment, so as to prevent, as far as practicable, the evils flowing from deficient training in the responsible duties of preparing, dispensing, and selling medicines.

5. To suppress empiricism, and to restrict the dispensing and sale of medicines to regularly educated Druggists and Apothecaries.

6 To uphold standards of authority in the Education, Theory, and Practice of Pharmacy.

7. To create and maintain a standard of professional honesty equal to the amount of our professional knowledge, with a view to the highest good and greatest protection to the public.

ARTICLE II. This Association shall consist of active, life, and honorary members, and shall hold its meetings annually.

ARTICLE III. The officers of the Association shall be a President, three

Vice-Presidents, a Permanent Secretary, a Local Secretary, and a Treasurer, all of whom, with the exception of the Permanent Secretary, shall be elected annually, and shall hold office until an election of successors.

ARTICLE IV. All moneys received from life membership, together with such funds as may be bequeathed or otherwise donated to the Association, shall be invested by the Treasurer in United States Government or State securities, the annual interest of which only shall be used by the Association for its current expenses.

ARTICLE V. Every proposition to alter or amend this Constitution shall be submitted in writing, and may be balloted for at the next Annual Meeting, when, upon receiving the votes of three-fourths of the members present, it shall become a part of this Constitution.

BY-LAWS.

CHAPTER I.

Of the President and Vice-Presidents.

ARTICLE I. The President shall preside at all meetings of the Association; in his absence or inability, one of the Vice-Presidents, or in the absence of all, a President pro tempore shall perform the duties of President.

ARTICLE II. In the absence of the Permanent Secretary, the President shall appoint a Recording Secretary pro tempore.

ARTICLE III. In meetings the President shall take the chair at the proper time; announce all business; receive all proper motions, resolutions, reports, and communications, and order the vote upon all proper questions at the proper time.

ARTICLE IV. In all ballotings, and on questions upon which the yeas and nays are taken, the President is required to vote, but his name should be called last; in other cases he shall not vote, unless the members be equally divided, or unless his vote, if given to the minority, will make the division equal, and in case of such equal division the motion is lost.

ARTICLE V. He shall enforce order and decorum; it is his duty to hear all that is spoken in debate, and in case of personality or impropriety he shall promptly call the speaker to order. He shall decide all questions of order, subject to the right of appeal, unless in cases where he prefers to submit the matter to the meeting; decide promptly who is to speak when two or more members rise at the same moment; and be careful to see that business is brought forward in proper order.

ARTICLE VI. He shall have the right to call a member to the chair in order that he may take the floor in debate. He shall see that the Constitution and By-Laws are properly enforced.

ARTICLE VII. He shall appoint all committees, unless provided for in the By-Laws, or otherwise directed by the Association.

ARTICLE VIII. He shall sign the certificates of membership, and countersign all orders on the Treasurer. He shall obey the instructions of the Association, and authenticate by his signature, when necessary, its proceedings.

ARTICLE IX. He shall present at each annual meeting a report of the operations of the Association during the year, with such information pertaining to its condition and prospects, and the object it has in view, together with such suggestions for its future management as may seem to him proper.

CHAPTER II.

Of the Permanent Secretary.

ARTICLE I. The Permanent Secretary shall be elected to hold office permanently, during the pleasure of the Association. He shall receive from the Treasurer an annual salary of $500, and the amount of his expenses incident to the meeting in addition to his salary.

ARTICLE II. He shall preserve fair and correct minutes of the proceedings of the meetings, and carefully preserve on file all reports, essays, and papers of every description received by the Association, and shall be charged with the necessary foreign and scientific correspondence, and with editing, publishing, and distributing the Proceedings of the Association, under the direction of the Executive Committee.

ARTICLE III. He shall read all papers handed him by the President for that purpose; shall call and record the yeas and nays whenever they are required to be called; shall notify the chairman of every special committee of his appointment, giving him a list of his colleagues, and stating the business upon which the committee is to act; and shall notify every member of the time and place of each annual meeting.

ARTICLE IV. He shall be, ex-officio, a member of the Executive Committee.

CHAPTER III.

Of the Local Secretary.

ARTICLE I. The Local Secretary shall be elected annually, near the close of the Annual Meeting, and shall reside at or near the place where the next Annual Meeting of the Association is to be held.

ARTICLE II. He shall assist the Permanent Secretary in his duties; shall co-operate with any local committee in making arrangements for the Annual Meeting; shall correspond with the chairmen of the several committees, and with other members, in advance of the meeting, for the promotion of its objects, and shall have the custody of specimens, papers, and apparatus destined for use or exhibition at the meetings.

CHAPTER IV.

Of the Treasurer.

ARTICLE I. The Treasurer shall collect and take charge of the funds of the Association, and shall hold, sign, and issue the certificates of membership.

ARTICLE II. He shall pay no money except on the order of the Secretary, countersigned by the President, and accompanied by the proper vouchers.

ARTICLE III. He shall report to the Executive Committee, previous to each Annual Meeting, the names of such members as have failed to pay their annual contributions for three years, and also the names of such as have failed to return their certificates of membership after having been officially disconnected with the Association, and having been duly notified to return them.

ARTICLE IV. He shall present a statement of his accounts at each Annual Meeting, that they may be audited; he shall receive an annual salary of $300, and the amount of his expenses incident to the meeting in addition to his salary.

CHAPTER V.

Of Committees.

ARTICLE I. There shall be elected annually five standing committees: An Executive Committee, a Committee on the Progress of Pharmacy, and a Committee on the Drug Market, each to consist of five members; a Committee on Papers and Queries, and a Business Committee, each to consist of three members.

ARTICLE II. The Executive Committee, of which the Permanent Secretary shall be a member, shall have charge of the revision of the Roll, the investigation of application for membership, and the publication of the Proceedings.

ARTICLE III. They shall report at each meeting a revised roll of members, with appropriate notices of deceased members, and the names of any who, having become disconnected with the Association, refuse to return their certificates of membership as provided by the By-Laws.

ARTICLE IV. They shall furnish to each member of the Association not in arrears one copy of the annual publication of the Proceedings, which publication shall contain the correct roll of members, full minutes of the several sittings, the report of the President and of the Committees, together with such addresses, scientific papers, discussions, notices of new processes and preparations, as the Executive Committee may deem worthy of insertion, and shall fix the price at which the Proceedings shall be sold.

ARTICLE V. The Committee on the Progress of Pharmacy, of which the Local Secretary shall be a member, shall report annually to the Association on the improvements in Chemistry, Practical Pharmacy, and the collateral branches, and on any new works bearing on these subjects published in this country or elsewhere.

ARTICLE VI. The Committee on the Drug Market shall report annually the condition of the Drug Market, the fluctuations in the supply and demand of drugs and chemicals, the variations in quality, and the adulterations and sophistications coming under their observation or reported to them by others, with any suggestions or recommendations for the improvement or better regulation of the trade; and they shall be authorized to report upon any adulterations and sophistications of immediate interest, through the Pharmaceutical Journals, as soon as practicable after their discovery.

ARTICLE VII. The Committee on Papers and Queries shall receive all Reports of Standing Committees, and all papers for the Association. They shall designate which of them shall be read at length, or which by title, and shall be furnished with a synopsis of each by the authors. They shall, in connection with the Business Committee, arrange the time which may be most appropriate or convenient for reading them.

ARTICLE VIII. The Committee on Papers and Queries shall report, near the close of each Annual Meeting, the proper number of questions of scientific and practical interest, the answers to which may advance the interests of Pharmacy, and shall procure the acceptance of as many such questions for investigation as may be practicable.

ARTICLE IX. Any person writing a paper for the Association must, to insure its publication in the Proceedings, refer the same with a synopsis of its contents to the Committee on Papers and Queries previous to the third session.

ARTICLE X. It shall be the duty of every Standing Committee making a report annually to the Association, in like manner to furnish a copy of the same, together with a synopsis of its contents, to the Committee on Papers and Queries before the first annual session of the Association.

ARTICLE XI. The Business Committee shall be charged with the transmission of unfinished business from one Annual Meeting to another, and with collecting, arranging, and expediting the business during the sessions of the Annual Meetings.

CHAPTER VI.

Of Membership.

ARTICLE I. Every pharmaceutist and druggist of good moral and professional standing, whether in business on his own account, retired from business, or employed by another, and those teachers of Pharmacy, Chemistry, and Botany, who may be specially interested in Pharmacy and Materia Medica, who, after duly considering the objects of the Association and the obligations of its Constitution and By-laws, are willing to subscribe to them, are eligible to membership.

ARTICLE II. Any person eligible to membership may make application in writing, with the indorsement of any two members of the Association in good standing, to any member of the Executive Committee, who shall report his application to the said Committee.

If after investigating his claims they shall approve his election, they shall, at the earliest time practicable, report his name to the Association, and he may be elected by two-thirds of the members present on ballot.

ARTICLE III. No person shall be a member of this Association, nor shall his name be placed upon the roll, until he shall have signed the Constitution and paid into the Treasury the sum of *Five Dollars* as an initiation fee, and the annual contribution for the current year, with the exception of *Delegates*, as provided in Article VI of this chapter.

ARTICLE IV. Every member shall pay in advance to the Treasurer the sum of *Five Dollars* as his yearly contribution, and is liable to lose his membership by neglecting to pay said contribution for *three successive years*.

ARTICLE V. Any member who shall pay to the Treasurer the sum of *Seventy-five dollars at one time*, shall become a life member and shall be exempt from all future annual contributions.

ARTICLE VI. All Colleges of Pharmacy or local Pharmaceutical organizations shall be entitled to *five* delegates, as their representatives in the Annual Meetings, who, *if present*, become members of the Association on signing the Constitution and paying the annual contribution for the current year, without paying the usual initiation fee.

ARTICLE VII. Members shall be entitled on the payment of *Five Dollars* to receive a certificate of membership signed by the President, one Vice-President, Permanent Secretary, and Treasurer, at the same time covenanting to return the same to the proper officer on relinquishing their connection with the Association.

ARTICLE VIII. Persons constitutionally elected to membership become permanent members, and their membership can cease only by resignation, non-payment of dues, or by expulsion, as provided in these By-laws.

ARTICLE IX. Resignation of membership shall be made in writing to the Permanent Secretary or Treasurer, but no resignation shall be accepted from any one who is in arrears to the Treasury.

All resignations shall be acknowledged in writing by the officer who receives them, and shall be reported at the next Annual Meeting.

ARTICLE X. Any member may be expelled for improper conduct or the violation of the Constitution, By-Laws, or Ethics adopted by the Association, but no person shall be expelled unless he shall receive for expulsion two-thirds of all the votes cast at some regular session.

ARTICLE XI. Pharmaceutists, chemists, and other scientific men, who may be thought worthy the distinction, may be elected honorary members. They shall not, however, be required to contribute to the funds, nor shall they be eligible to hold office, or vote at the meetings.

CHAPTER VII.

Of Meetings.

ARTICLE I. The meetings shall be held annually; provided, that in case of failure of this from any cause the duty of calling the Association together

shall devolve upon the President, or one of the Vice-Presidents, with the advice and consent of the Executive Committee.

ARTICLE II. The order of business at the first session of each Annual Meeting shall be as follows:

Section 1. Promptly, at the time named in the notice issued for the meeting, the President, or in his absence one of the Vice-Presidents, or in their absence a President pro tempore, shall officiate.

Section 2. In the absence of the Permanent Secretary the President shall appoint a Recording Secretary pro tempore, who shall perform the duties of the Permanent Secretary until his arrival.

Section 3. Nineteen members shall constitute a quorum for the transaction of business.

Section 4. The President shall appoint a Committee of three persons to examine the credentials of delegates, which Committee shall attend to that duty, and report to the Association as soon as possible, when the Secretary shall call the roll, noting the names of the delegates and members in attendance.

Section 5. The Executive Committee shall present names recommended for membership, when the President, having ascertained that a quorum of members is present, shall order an election by ballot, and appoint two tellers.

Section 6. Reports of Committees shall be presented, read by their titles, the synopsis, or in full, and laid on the table for future consideration.

Section 7. The President shall call the roll of Colleges and Associations represented, requesting each delegation in turn to appoint one member, the persons so selected to act as a Committee to nominate officers for the ensuing year; in addition to which he shall appoint five members, who are not delegates, to act with the Committee.

Section 8. The Reports of the Executive Committee, of the Permanent Secretary, and of the Treasurer, shall be read by title or in full.

Section 9. Incidental business may be called up by the Business Committee.

Section 10. The first session shall close with the reading of the President's Annual Report, and the reference of any portions of it requiring action, to an appropriate Committee.

ARTICLE III. The order of business at the second session of each Annual Meeting shall be as follows:

Section 1. The President shall call the Association to order.

Section 2. The Secretary shall read the minutes of the preceding meeting, which may be amended if necessary, and shall then be approved.

Section 3. The Report of the Committee on Nominations shall be read; when the President shall appoint tellers, and the Officers and Committees nominated shall be balloted for.

Section 4. The officers elected shall take their respective places.

Section 5. The Executive Committee shall present names recommended for membership, when a ballot shall be ordered for their election.

Section 6. Reports of Standing Committees shall be read.

Section 7. Reports of Special Committees shall be read.

Section 8. A Committee of five shall be appointed to examine and report upon specimens exhibited.

Section 9. The second session shall close with the examination of specimens on exhibition.

ARTICLE IV. The order of business at subsequent sessions shall be determined by the Business Committee, with the consent of the Association.

CHAPTER VIII.

Of Rules of Order and Debate.

ARTICLE I. The ordinary rules of parliamentary bodies shall be enforced by the presiding officer, from whose decision, however, appeals may be taken, if required by two members, and the meeting shall thereupon decide without debate.

ARTICLE II. When a question is regularly before the meeting and under discussion, no motion shall be received but to adjourn, to lay on the table, for the previous question, to postpone to a certain day, to commit or amend, to postpone indefinitely; which several motions have precedence in the order in which they are arranged. A motion to adjourn shall be decided without debate.

ARTICLE III. No member may speak twice on the same subject, except by permission, until every member wishing to speak has spoken.

ARTICLE IV. On the call of any two members, the yeas and nays shall be ordered, when every member shall vote, unless excused by a majority of those present, and the names and manner of voting shall be entered on the minutes.

CHAPTER IX.

Miscellaneous.

ARTICLE I. In all such points of order as are not noticed in these By-Laws, the Association shall be governed by the established usages in all assemblies governed by parliamentary rules.

ARTICLE II. Every proposition to alter or amend these By-Laws shall be submitted in writing, and may be balloted for at any subsequent session, when, upon receiving the votes of three-fourths of the members present, it shall become a part of the By-Laws.

ARTICLE III. No one or more of these By-Laws shall be suspended.

FORM OF APPLICATION FOR MEMBERSHIP.

APPROVING of the objects of the American Pharmaceutical Association, I am desirous of joining it in membership; and having read its Constitution and By-laws, I hereby signify my approval of the same, and subscribe to them.

.....

Address,.....

I hereby agree to return my certificate of membership in the American Pharmaceutical Association to the Treasurer of that body, if I shall hereafter cease to be connected in membership with it.

.....

TESTIMONIALS.

The undersigned, members in good standing, being personally acquainted with of testify to his moral character, his skill as a practical Druggist and Pharmaceutist, and his professional probity and good standing, and they recommend him for membership in the American Pharmaceutical Association.

NAME. ADDRESS.

ROLL OF MEMBERS.

HONORARY MEMBERS.

UNITED STATES OF AMERICA.

Montgomery J. Bailey, M.D.,	New York,	New York,	1856
Elias Durand,	Philadelphia,	Penna.,	1857
Daniel B. Smith,	"	"	1856
George B. Wood, M.D.,	"	"	1857

FOREIGN COUNTRIES.

AUSTRIA.

Anton von Waldheim, *Vienna*, 1871.

BELGIUM.

A. T. De Meyer, *Brussels*, 1868. Norbert Gille, *Brussels*, 1868.

ENGLAND.

Dr. John Attfield, *London*, 1871. Henry Deane, *London*, 1868.
Henry B. Brady, *Newcastle-on-Tyne*, 1871. Daniel Hanbury, *London*, 1868.
Dr. J. Redwood, *London*, 1871. Dr. Robert Bentley, *London*, 1872.

FRANCE.

Dr. A. Chevallier, *Paris*, 1871. Dr. Augustin A. Délondre, *Sèvres*, 1871.
Dr. J. Léon Soubeiran, *Paris*, 1871. Stanislas Martin, *Paris*, 1872.

GERMANY.

Dr. Adolf Duflos, *Breslau*, 1871. Dr. H. Ludwig, *Jena*, 1871.
Dr. Hermann Hager, *Berlin*, 1868. Dr. Frederick Mohr, *Bonn*, 1868.
Dr. G. C. Wittstein, *Munich*, 1868.

NETHERLANDS.

Dr. J. E. De Vrij, *Hague*, 1871.

RUSSIA.

Dr. Arthur Casselmann, *St. Petersburg*, 1868. Dr. G. Dragendorff, *Dorpat*, 1868.

SWITZERLAND.

Dr. F. A. Flückiger, *Berne*, 1868.

ACTIVE MEMBERS.

(The names of life members in small capitals.)

UNITED STATES OF AMERICA.

ALABAMA.

Mobile.

Candidus, Philip Charles, . 1857
Mohr, Charles, . . . 1871
Primo, Manuel, . . . 1868

Selma.

Carrel, Alexander S., . . 1871
McVoy, James L., . . . 1871
Wilkins, John D., . . . 1871

ARKANSAS.

Little Rock.

Beidelman, John Wilmer, . 1871
McAlmont, John J., M.D., . 1871
Naulty, William H., . . 1870

CALIFORNIA.

San Francisco.

Calvert, John, . . . 1870
Geary, William, . . . 1870
Greatrex, Thomas J., . . 1869
McKay, George J., . . . 1864
Moffit, John W., . . . 1870
Moffitt, Thomas S., . . 1861
Painter, Emlen, . . . 1870
Simpson, William, . . . 1870
Steele, Henry, ... 1859
Steele James G., . . . 1859
Wenzell, William T., . . 1870

Hayward.

Richards, Edward J., . . 1870

Mare Island.

Anderson, Joseph E., . . 1869

Petaluma.

Maynard, Frederick T., . . 1864

Vallejo, Solano Co.

Frost, James, ... 1870
Topley, James, . . . 1869

Visalia, Tulare Co.

Blake, James W., . . . 1869

COLORADO.

Central City.

Best, John, ... 1866

COLUMBIA, DISTRICT OF.

Washington.

Baldus, William T., . . 1872
Bannvart, Charles A., . . 1856
Benson, Henry G., . . . 1872
Bury, Edward Berkley, . . 1870
Callan, James Nicholas, . . 1857
Cromwell, Zachariah William, 1870
Ferguson, Robert Benedict, . 1867
Fitzgerald, John Edward, . 1869
Fitzgerald, Joseph Stanislaus, 1869
Gaither, Francis Singleton, . 1860
Heller, P. H., ... 1871
Hickling, Dan. Percy, Phar.D., 1867
Howard, George M., . . 1871
Kidwell, John Lawrence, . 1856
Lineaweaver, Kline Cyrus, . 1864
Milburn, John Alexander, . 1858
Murray, Talbot Chambers, . 1863
Nairn, Joseph Wilson, . . 1858
O'Donnell, James Dominic, . 1870
Rothrock, Weller, . . . 1869
Sayre, Charles Le Roy, . . 1869
Simms, Giles Green Craycroft, 1860
Sylvester, Samuel Retallack, . 1858
Thompson, William S., . . 1871
Tyson, Samuel Ellicott, M.D., 1857

CONNECTICUT.

Hartford.

Lambe, John J., . . . 1868

Middletown.

Pitt, John R., Jr., . . . 1872

New Haven.

Chapin Harlow, . . . 1871
Daggett, Alfred, Jr., . . 1865
Daggett, Henry, . . . 1871

Stamford.

Haight, William B., . . 1872
Morrison, Samuel C., . . 1871

Waterbury.

Dikeman, Nathan, . . . 1865
Munson, L. J., . . . 1872

DELAWARE.

Wilmington.

McInall, Edward, Jr., . . 1867
Shoemaker, Benjamin, . . 1867
Simms, John H., M.D., . . 1867
Smith, Linton, M.D., . . 1870

New Castle.

Ferris, Charles E., M.D., . 1867

FLORIDA.

Fort George.

Rollins, John Francis, . . 1859

GEORGIA.

Atlanta.

Daniels, John B., . . . 1871
Peacock, Frederick S., . . 1871
Schumann, Theodore, . . 1860

Augusta.

Land, Robert H., . . . 1859

Macon.

Huddart, John P., . . . 1870
Hunt, Leonard W., . . 1871
Mason, Frederick E., . . 1871
Zeilin, John Henry, . . 1859

Milledgeville.

Clark, John M., . . . 1857
Grieve, Fleming G., . . 1859
Cotting, William A., . . 1869

Rome.

Fenner, William R., . . 1871

ILLINOIS.

Aurora.

Howell, C. C., . . . 1871

Belleville.

Baker, Nathan T., . . . 1871
Steingoetter, Henry, . . 1871

Bloomington.

Dyson, Dunbar S., . . . 1856
Jones, Charles S., . . . 1869

Bradford, Stark Co.

Plummer, David G., . . 1869

Cairo.

Macdonald, George, . . 1871

Chicago.

Bartlett, N. Gray, . . . 1864
Biroth, Henry, . . . 1865
Bliss, Sylvester S., . . . 1865
Blocki, William F., . . 1868
Borcherdt, Julius C., . . 1867
Brown, Thomas, . . . 1865
Bryan, Alexander B., . . 1865
Bryan, Frederick A., . . 1865
Buck, George, ... 1860
Curth, Nicholaus T., . . 1865
Ebert, Albert E., . . . 1864
Ehrman, John W., . . . 1867
Fredigke, Charles Christian, . 1869
Fuller, Henry W., . . . 1865
Fuller, Oliver F., . . . 1869
Gale, Edwin O., . . . 1857
Gale, William H., . . . 1857
Garrison, Herod Dailey, . . 1869
Grassly, Charles William, . 1868
Hambright, George M., . . 1865
Hanning, John T., . . . 1864
Heuermann, Henry W., . . 1869
Heylman, Charles, . . . 1865
Hirsh, Joseph, . . . 1869
Hooper, John H., . . . 1865
Jacobus, Judson S, . . 1870
Jamieson, Thomas N., . . 1869
Mahla, Frederick, Ph.D., . 1864
McPherson, George, . . 1865
Mead, Nehemiah, . . . 1865
Mill, James W., . . . 1864
Milleman, Philip L., . . 1866
Murray, Allen F., . . . 1869
Paine, James D., . . . 1857

Palmer, Hosea W., . . . 1870
Parsons, John, . . . 1865
Patterson, Theodore H., . . 1869
Reinhold, William, . . . 1866
Sargent, Ezekiel H., . . 1864
Schroeder, Nobel, . . . 1866
Sharp, J. Perine, . . . 1865
Smith, Albert A., . . . 1869
Strehl, Louis C., . . . 1866
Sweet, Henry, ... 1865
Vanderburgh, Abram C., . 1869
Whitfield, Thomas, . . . 1865
Willard, Joseph, . . . 1865
Wilson, Julius H., . . . 1869
Woltersdorf, Louis, . . 1865

Galesburg.

Clark, Albert B., Jr., . . 1868
Devendorf, Almond Smith, . 1872
Johnson, Newton A., . . 1869

Highland.

Mueller, Adolphus, . . . 1871

Livingston.

Gallagher, James, . . . 1865

Peoria.

Breed, Marvin A., . . . 1866
Colburn, Walter, . . . 1869
Miles, Benjamin Franklin, M.D., 1869
Singer, Peter J., . . . 1869

Quincy.

Schroeder, Hermann, . . 1871

Young America.

Peirpoint, Newton, . . . 1869

INDIANA.

Evansville.

Lilly, James E., . . . 1872

Fort Wayne.

Van Sweringen, Hiram, . . 1865

Indianapolis.

Bristol, A. J., ... 1871
Dryer, James W., . . . 1871
Miller, Edward T., . . . 1859
Schrader, Henry, . . . 1869
Sloan, George W., . . . 1857

Kendallville.

Lohman, George H., . . 1872

La Porte.

West, Frederick, . . . 1866

New Albany.

Scribner, Benjamin Franklin, 1858

Terre Haute.

Davis, Charles A., . . . 1871

IOWA.

Burlington.

Matthews, Charles C., . . 1869

Davenport.

Ballard, John W., . . . 1871

Des Moines.

Carey, Edward R., . . . 1871

Fort Madison.

Schaefer, George H., . . 1871

Guttenberg, Clayton Co.

Vogel, Richard, . . . 1867

Le Mars, Plymouth Co.

Bennett, Charles H., . . 1869

Washington.

Cook, William A., . . . 1871
Ink, Parker P., . . . 1872

KANSAS.

Fort Scott.

Connor, Lucius E., . . . 1869
Ingalls, Albert O., . . . 1869

Junction City.

Porter, Edward T., . . . 1867

Lawrence.

Hunt, Nathan W., . . . 1869
Leis, George, ... 1869

Leavenworth.

Brown, Robert J., . . . 1862

Harrop, Joseph W., . . 1869
Parham, Robert, . . . 1868

Olathe.

Marshall, John B., . . . 1871

Poala, Miami Co.

Price, Joseph Warren, . . 1869

Topeka.

Greeno, Henry S., . . . 1869

KENTUCKY.

Covington.

Mauss, Richard G., . . . 1869
Nodler, Peter, ... 1870

Louisville.

Brown, James E., . . . 1870
Carey, George H., ... 1866
Colgan, John, ... 1867
Diehl, Conrad Lewis, . . 1863
Hughes, Henry A., . . . 1857
Jenkins, Thomas E., M.D., . 1866
Jones, Simon N., . . . 1870
Kern, Flora, Jr., . . . 1868
Newman, George A., . . 1866
Pfingst, Ferdinand J., . . 1867
Sacksteder, Francis, . . 1867
Scheffer, Emil, . . . 1872
Strassel, William, . . . 1870
Sutton, Ellsworth S., . . 1871
Sutton, Peter P., . . . 1871
Wilder, Graham, . . . 1868

LOUISIANA.

New Orleans.

Gamotis, A., ... 1872
Keaton, M. E. F., . . . 1871
Keffer, Frederick A., M.D., . 1862
Keffer, William P., . . 1866
Parker, Charles G., . . . 1870
Pope, John H., . . . 1860

Bayou Goula.

Viallon, Paul L., . . . 1870

New Iberia.

Lee, James A., . . . 1856

Thibodeaux.

Thibodeaux, Joseph G., . . 1870

MAINE.

Augusta.

Partridge, Charles K., . . 1867

Bangor.

Harlow, Noah Sparhawk, . 1859

Eastport.

Shead, Edward E., . . . 1866

Lewiston.

Cook, John G., ... 1859

Portland.

Cummings, Henry T., M.D., . 1858
Hay, Henry H., . . . 1867
Jorden, William H., . . 1871
Patten, John F., . . . 1871
Phillips, Walter F., . . 1859

MARYLAND.

Baltimore.

Andrews, George W., Phar.D., 1856
Baxley, J. Brown, Phar.D., . 1856
Brown, Alexander E., . . 1863
Brown, William H., . . 1863
Burrough, Edward Ewalt, . 1869
Burrough, Horace, . . . 1869
Caspari, William, . . . 1856
Dannattel, George F., . . 1867
Dickey, George S., . . . 1859
Dohme, Charles E., . . . 1863
Dohme, Lewis, . . . 1859
Donavin, Matthew W., . . 1867
Duke, Augustin Whitfield, . 1870
Elliott, Henry A., . . . 1859
Emich, Columbus V., . . 1863
Frames, James P., . . . 1868
German, John W., . . . 1870
Gossman, Adam J., . . 1870
Graefle, Frederick Alexander, 1870
Hancock, John Francis, . . 1863
Hancock, John Henry, . . 1870
Hassencamp, Ferdinand, . . 1872
Jefferson, John H. B., . . 1868
Jennings, N. Hynson, . . 1857

Kirby, Thomas E., M.D., . 1868
Lauer, Michael J., . . . 1865
Lautenbach, Robert, M.D., . 1870
Lilly, Alonzo, Jr., . . . 1863
Marion, Alfred N., . . . 1872
Monsarrat, Oscar, . . . 1856
Moore, J. Faris, M.D., Phar.D., 1856
Morrison, S. Ellwood, . . 1863
Muth, John P., . . . 1864
Osburn, William H., . . 1870
Perkins, Elisha H., . . 1857
Potts, Jesse Newport, . . 1870
Roberts, Joseph, Phar.D., . 1856
Russell, Eugene J., . . . 1856
Russell, E. Walton, Phar.D., . 1863
Sappington, Richard, M.D., . 1870
Sharp, Alpheus P., . . . 1855
Sheets, James Addison, . . 1870
Skinner, Joseph G., . . 1864
Smith, Edward A., . . . 1870
Smith, J. Jacob, . . . 1856
Suding, Henry A., . . . 1870
Tilyard, Charles L., . . 1867
Thompson, William S., . . 1856
Thompson, Wilbur F., . . 1870
Thomsen, John J., . . . 1856
Webb, John A., . . . 1870
Winkleman, John H., . . 1864

Annapolis.

Button, Elijah, . . . 1870
Street, Daniel B., . . . 1867

Cumberland.

Campbell, John H. B., . . 1870

Frederick.

Pettit, Henry M., . . . 1860

Hagerstown.

Winter, Jonas, . . . 1863

MASSACHUSETTS.

Boston.

Atwood, Charles H., . . 1856
Babcock, James F., . . . 1865
Babo, Leopold, . . . 1859
Bassett, Charles Harrison, . 1867
Blossom, William A., . . 1871
Boyden, Ashel, . . . 1853
Brown, Joseph Taylor, . . 1859
Brown, Joseph Taylor, Jr., . 1869
Brown, William, . . . 1858
Burnett, Joseph, . . . 1852
Burnham, George H., . . 1871
Campbell, Isaac T., . . . 1859
Canning, Henry, . . . 1865
Carter, Solomon, . . . 1865
Clock, Frank B., . . . 1865
Colcord, Samuel M., . . 1852
Colton, James B., . . . 1865
Connor, Thomas J., . . 1867
Cutler, Edward Waldo, . . 1859
Doliber, Thomas, . . . 1859
Doolittle, Erastus Hubbard, . 1865
Dows, Gustavus D., . . 1865
Drury, Linus Dana, . . 1871
Dyer, J. Howes, . . . 1865
Eaton, Charles I., . . . 1867
French, George Washington, . 1865
Fowle, Henry D., . . . 1853
Gleeson, James A., . . . 1859
Gleeson, Michael H., . . 1859
Hazeltine, Charles Benjamin R., 1867
Henchman, Daniel, . . . 1853
Hoagland, Pratt R., . . 1868
Hollis, Thomas, . . . 1853
Horton, William Francis, . 1869
Jenkins, Luther L., . . 1867
Kelley, Edward Samuel, . . 1871
Kent, Robert R., . . . 1855
Kidder, Darius B., . . . 1858
Leary, John Thomas, . . 1869
Lincoln, Henry Ware, . . 1853
Littlefield, Alvah, . . . 1856
Lowd, John Colby, . . . 1871
Markoe, George Frederick H., 1868
Melvin, James S., . . . 1853
Metcalf, Theodore, . . . 1857
Nowell, William F., . . 1867
Parker, Joseph L., . . . 1864
Patch, Edgar Leonard, . . 1872
Patten, Ichabod Bartlett, . 1858
Perry, Edward H., . . . 1865
Restieaux, Thomas, . . . 1853
Ricker, George D., . . . 1858

Sheppard, Samuel A. D., . 1865
Smalley, Elijah, . . . 1860
Tappan, Charles Eldridge, . 1871
Tompkins, Orlando, . . 1859
Tower, Levi, Jr., . . . 1860
Turner, T. Larkin, . . . 1853
Underwood, Charles G., . . 1865
Wiley, Abraham S., . . 1857
Wilkins, Daniel G., . . 1865
Wilson, Benjamin O., . . 1859
Woodbridge, Geo. Washington, 1859

Brookline.

Bird, George W., . . . 1867

Cambridge.

Hubbard, John H., . . . 1866
James, Thomas P., . . . 1857

Cambridgeport.

Arnold, George K., . . . 1871
Bayley, Augustus R., . . 1859
Orne, Joel S., ... 1859
Richardson, James H., . . 1868
Thayer, Henry, . . . 1858

Charlestown.

Dodge, Levi G., . . . 1859
Kettell, George P., . . . 1867
Stacey, Benjamin Franklin, . 1860
Warfield, Abijah Baker, . . 1870

Chelsea.

Buck, John, ... 1855

East Abington.

Estes, Joseph Josselyn, . . 1870

Great Barrington.

Whiting, Frederick T., . . 1863

Hingham.

Hunt, James L., . . . 1865

Hudson.

Safford, William Augustus, . 1865

Lawrence.

Whitney, Henry M., . . 1859

Lee.

Callender, George E., . . 1872

Lowell.

Bailey, Frederick, . . . 1869
Hood, Charles I., . . . 1871
Kidder, Samuel, Jr., . . 1859

Lynn.

Proctor, Benjamin, . . . 1859

Maynard.

Wouldhave, Thomas, . . 1871

New Bedford.

Blake, James E., . . . 1866
Hadley, Frank R., . . . 1872

Newburyport.

Goodwin, William W., . . 1853
Smith, Samuel A., . . . 1859

North Adams.

Holden, Henry C., . . . 1870
Pettis, Newton C., . . . 1868

North Andover.

Berrian, George W., Jr., . 1857

Rockport.

Blatchford, Eben, . . . 1857
Blatchford, Eben, Jr., . . 1865

Salem.

Emerton, James, . . . 1859

Sheffield.

Bidwell, Marshall Spring, . 1871

Springfield.

Bigelow, Edmund, . . . 1860

Wakefield,

Melzar, Augustus P., . . 1856

Worcester.

Bright, James Evesson, . . 1868
McConville, Michael S., . . 1859
McConville, Thomas A., . 1864
Scott, David, ... 1855
Scott, Nelson R., . . . 1859

MICHIGAN.

Almont.

Richardson, Daniel W., . . 1866

Ann Arbor.

Douglass, Samuel H., M.D., . 1869
Eberbach, Ottmar, . . . 1869
Prescott, Albert B., M.D., . 1871

Battle Creek.

Wardell, Robert C., . . 1860

Bay City.

Aldridge, George, . . . 1872
Street, Job F., . . . 1869

Chelsea.

Glazier, George P., . . 1863

Detroit.

Chapman, Joseph R., . . 1869
Duffield, Samuel P., Ph.D., . 1859
Fletcher, Francis E., . . 1866
Griffith, John H., . . . 1866
Johnston, William, . . 1860
Ronnefeld, Theodore, . . 1866
Vernon, James, . . . 1866

East Saginaw.

Dunk, Alfred A., . . . 1867
Garrigues, Samuel S., Ph.D., . 1855
Melchers, Henry, . . . 1869
Simoneau, Leander, . . 1869

Jackson.

Meseroll, James C., . . 1867
Weeks, Eugene J., . . . 1866

Monroe.

Weiss, Julius, ... 1866

Muskegon.

Wagener, Samuel H., . . 1869

Pentwater.

Jesson, Jacob, ... 1872

Saginaw City.

Keeler, William H., . . 1872
Moll, William, . . . 1869

Schoolcraft.

James, George R., . . . 1869

MINNESOTA.

Duluth.

Eyster, C. Edward, . . 1871

Mankato.

Austin, George W., . . 1865

Minneapolis.

Savory, George Augustus, . 1869

St. Paul.

Stein, Gottlieb, . . . 1871
Sweeney, Robert Ormsby, . 1866

St. Peter.

Reigart, John Musser, . . 1871

MISSISSIPPI.

Columbus.

Osborne, Hampden, . . 1869

Jackson.

Ash, Matthew F., . . . 1856
Buck, John T., . . . 1868

MISSOURI.

St. Louis.

Alexander, Maurice W., . 1871
Bang, Charles, . . . 1871
Blake, Amos R., . . . 1871
Blank, Alois, ... 1871
Blickhahn, George F., M.D., . 1871
Boehm, Solomon, . . . 1871
Bugge, Andreas Valdemar, . 1868
Catlin, Ephron, . . . 1871
Catlin, Theron, . . . 1871
Chamberlain, Guilford T., . 1853
Chase, Charles D., . . . 1872
Connor, James F., . . . 1871
Crawford, William Harper, . 1864
Crawley, Francis Xavier, . 1869
Curtman, Charles O., M.D., . 1871
D'Amour, Otto, . . . 1871
Fischer, C. F. Adolph, . . 1871
Glenn, Thomas Smith, . . 1870
Good, James M., . . . 1871
Grandjean, Charles, . . 1871
Grandjean, Eugene, . . 1871

Graus, William R., . . 1871
Guerdan, John, . . . 1871
Hollister, Arthur P., . . 1871
Jones, Charles Kendall, . . 1867
Jones, George H., . . . 1869
Kalb, Theodore, . . . 1864
Kirkbride, Joseph Cooper, . 1869
Kovacs, Martin, . . . 1871
Krebs, Hugo, ... 1871
Leitch, Arthur, . . . 1860
Maddock, William L., . . 1871
Mallinckrodt, Gustavus, . . 1869
Mallinckrodt, Edward, . . 1869
McBride, James, . . . 1864
Meyer, Christian F. G., . . 1860
O'Gallagher, James, M.D., . 1858
Physick, Henry Sanford, . 1870
Primm, Hubert, . . . 1855
Randals, Evermont, . . 1865
Richardson, J. Clifford, . . 1871
Sander, Enno, Ph.D., . . 1858
Schaeffer, Henry W., . . 1868
Scholz, Philip, . . . 1871
Sennewald, Ferdinand William, 1865
Steer, Justin, ... 1869
Tanton, Thomas, . . . 1865
Ude, George, ... 1871
Witte, L. Edward, . . . 1871

Chillicothe.

Boyce, S. F., ... 1871

Hannibal.

Orynski, L., ... 1871

Kansas City.

Baker, E. F., ... 1871
Brackett, Aurick S., . . 1868
Breunert, Augustus, . . 1868
French, Paul F., . . . 1871
Lyon, George P., . . . 1871
Mann, Albert H., . . . 1869
Schultz, Frederick William, . 1871

Macon.

Field, Amos, ... 1871

Mexico, Adrian Co.

Llewellyn, John Frederick, . 1867

St. Charles.

Allison, James W., . . . 1871

Trenton, Grundy Co.

Fetherston'h, Edward R., . 1871

Weston.

Parr, John C., ... 1856

NEBRASKA.

Omaha.

Goodman, Charles F., . . 1871

NEVADA.

Aurora.

Baldwin, Charles Edgar, . 1871
Green, Alexander Alfred, . 1868

NEW HAMPSHIRE.

Concord.

Morgan, James, . . . 1859

Dover.

Tufts, Charles Augustus, M.D., 1856

Exeter.

Merrill, Charles A., . . 1858

Keene.

Dort, Oliver Gilman, . . 1858

Manchester.

Littlefield, Chauncey B., . . 1868

New Market.

Dearborn, George L., . . 1858

Portsmouth.

Thacher, Joseph Haven, . . 1859
Whipple, Napoleon Dana, . 1871

Somersworth.

Jones, Charles Mortimer, . 1869
Moore, George, . . . 1859

NEW JERSEY.

Bordentown.

Hankins, Bunting, . . . 1865

Burlington.

Allinson, William J., . . 1862
Vandegrift, John A., . . 1867

Camden.

Brown, Albert P., . . . 1870
De la Cour, Joseph L., . . 1870
Test, Alfred W., . . . 1870

Elizabeth.

Barnaby, Thomas J., . . 1870

Elizabethport.

Frohwein, Richard, . . 1867

Englewood.

Morris, P. H., ... 1871

Hoboken.

Fehr, Julius, ... 1870

Jersey City.

Abernethy, Maxwell, . . 1865
Carman, George E., . . 1872
Covell, Thomas Jefferson, . 1864
De Motte, Henry A., . . 1871
Gardner, Robert W., . . 1872
Kirsten, Adolph, . . . 1867
Laird, William R., . . . 1867
Mercein, James R., . . . 1865
Phillips, George W. C., . . 1871
Roberts, Morris, . . . 1872
White, George H., . . . 1868

Madison.

Muchmore, William Fletcher, 1868

Morristown.

Dalrymple, Charles H., . . 1860
Sherman, Oliver G., M.D., . 1869
Voorhees, William S., . . 1868

Mount Holly.

White, Aaron Smith, . . 1860

Newark.

BADGER, CHARLES W., . . 1870
Dreher, Ernest, . . . 1869
Havenstein, Alexander, . . 1870
Jacques, Isaac W., . . . 1869
Kelley, Edward F., . . . 1870
Lee, John B., ... 1870
Littell, William M., . . 1870
Nichols, Edward P., M.D., . 1870
Peters, Alexander C., . . 1868
Smith, Charles B., . . . 1868
Vandervoord, Ransford Wells, 1870
Van Gieson, Theron W., . 1869
Van Winkle, Abraham, . . 1871

New Brunswick.

Rust, William, . . . 1870

Plainfield.

Voorhees, William H., . . 1868

South Amboy.

Greene J. H., ... 1872
Jacques, George W., . . 1869

Trenton.

Rickey, Randal, . . . 1870

Vincentown.

Heisler, Jacob, . . . 1868

NEW MEXICO.

Santa Fé.

Krummeck, Jacob, . . . 1867

NEW YORK.

New York City.

Aspinwall, James S., . . 1855
Balluff, Paul, ... 1860
Bates, Louis A., . . . 1869
Bedford, Peter Wendover, . 1859
Billings, Henry M., . . 1869
Brewer, William A., . . 1853
Carle, John, Jr., . . . 1860
Cassebeer, Henry A., . . 1858
Cassebeer, Henry A., Jr., . 1872
Chandler, Charles F., Ph.D., . 1867
Coddington, Isaac, . . . 1855
Currie, John H., . . . 1858
Davis, Benjamin, . . . 1869
Dege, George F., . . . 1868
Ditman, Andrew J., . . 1868
De la Vergne, George W., . 1857
Dung, Albert C., . . . 1872
Dunn, Adolph G., . . . 1862

Eimer, Charles, . . . 1872
Faber, John, ... 1857
Fisher, William, . . . 1862
Frey, John, ... 1865
Fougera, Edmund C., . . 1867
Frohwein, Max, . . . 1865
Frowein, Theobald, . . 1862
Gardiner, Warren B., . . 1860
Gill, George, M.D., . . 1872
Gilmore, John W., . . . 1867
Gellatly, William A., . . 1858
Giles, William M., . . . 1860
Goecke, Augustus Gottfried, . 1867
Green, Thomas T., . . . 1858
Gridley, Junius, . . . 1853
Hale, Frederick, . . . 1855
Harner, James M., . . . 1867
Haviland, Henry, . . . 1857
Hays, David, ... 1867
Hebberling, Gottfried, . . 1867
Hegeman, William, . . 1858
Higgins, James S., . . . 1862
Hoffmann, Frederick, Ph.D., . 1867
Hohenthal, Charles F. L., . 1865
Hudnut, Alexander, . . 1857
Imhof, Henry, . . . 1872
Johnson, Edward L., . . 1860
Jones, Frederick S., . . 1872
Kiersted, Henry, . . . 1858
Kiersted, Henry T., . . 1856
Kimmel, Henry, . . . 1867
Krehbiel, Gustavus, . . 1865
Lazell, Lewis T., . . . 1858
Lehlbach, Paul Frederick, . 1872
Macmahan, Thomas Jackson, . 1871
Main, Thomas F., . . . 1872
Marsh, Edward H., . . 1858
McKesson, John, Jr., . . 1867
Milhau, Edward L., . . 1858
Milhau, John, ... 1855
Molwitz, Ernest, . . . 1867
Neergaard, William, . . 1859
Nietsch, A. J. W., . . . 1872
Onderdonk, William H. C., . 1867
Osmun, Charles A., . . 1868
Peixotto, Moses L. M., . . 1869
Porter, George G., . . . 1860
Purdon, William N., . . 1871
Ramsperger, Gustavus, . . 1860
Reichard, F. Alfred, . . 1871
Reinold, Bernard H., . . 1861
Rice, Charles, ... 1870
Rice, Lucian M., . . . 1866
Robbins, Daniel C., . . 1862
Sands, Robert A., . . . 1858
Sands, George G., . . . 1867
Schofield, James L., . . 1867
Shedden, John W., . . 1859
Sheils, George E., . . . 1860
Skelley, James T., . . . 1866
Southwick, George W., . . 1860
Starr, Thomas, . . . 1870
Weaver, James, . . . 1860
Weismann, Augustus W., . 1869
Wenck, George J., . . . 1869
Westerfield, Joseph H., . . 1858
Wheeler, Lucian F., . . 1858
White, Philip A., . . . 1872
Wickham, William Hull, . 1870
Wright, George, . . . 1869
Wright, William, Jr., . . 1859

Brooklyn.

Barnaby, James Otis, . . 1870
Bassett, Francis M., . . 1860
Baylis, William E. P., . . 1860
Chadwick A., ... 1872
Close, George C., . . . 1858
Creuse, Jules L. A., . . 1871
Curtiss, Charles Grenville, . 1866
Day, Carlos E., . . . 1870
Dunn, John A., . . . 1867
Dupuy, Eugene, . . . 1852
Goodman, Bernard, . . 1867
Heydenreich, Emil, . . 1867
Heydenreich, F. Victor, . . 1860
Jones, Thomas, . . . 1868
Kitchen, Charles W., . . 1865
Lewis, Thomas, . . . 1867
Livingstone, B. V. B., . . 1872
Metcalf, Tristram W., . . 1857
Newman, George A., . . 1865
Niebrugge, John H., . . 1861
Ollif, James H., . . . 1867

Owens, Richard J., . . 1860
Peduzzi, George S., . . 1861
Pyle, Cyrus, ... 1859
Snyder, Ambrose C., . . 1867
Squibb, Edward R., M.D., . 1858
Tartiss, Alfred J., . . . 1867
Vincent, William, . . . 1870
Watson, William J., . . 1860
Wynn, William, . . . 1867

Albany.

Cutler, John N., . . . 1870
McMurdy, Robert S., M.D., . 1861

Angola, Erie Co.

Oatman, Le Roy S., . . 1872

Buffalo.

Peabody, William H., . . 1857
Rano, Charles O., . . . 1866
Tibbs, William H., . . . 1871

Elmira.

Morse, Henry C., . . . 1868

Fishkill, on Hudson.

Moith, Augustus Theodore, . 1860

Flushing.

Contant, James L., . . . 1868

Gloversville.

Searles, William C., . . 1872

Greenpoint.

Tapken, Theodore, . . . 1868

Lockport.

Ruete, Theodore W., . . 1870

Luzerne, Warren Co.

Miller, George Y., . . . 1872

Middletown.

King, James T., . . . 1859
Rogers, William H., . . 1869

New Lebanon.

Tilden, Henry A., . . . 1858

Plattsburgh.

Cady, Hiram Walworth, . 1870

Port Jervis.

George, E. Cook, . . . 1872

Potsdam.

Thatcher, Hervey D., . . 1865

Poughkeepsie.

Sherwood, Hezekiah S., . . 1870

Rochester.

Haas, George Hermann, . . 1872
Lane, Alfred S., . . . 1857

Rondout.

Laycock, Washington, . . 1857

Sag Harbor.

Lobstein, J. F. Daniel, . . 1868

Saratoga Springs.

Fish, Charles F., . . . 1866
Fish, George H., . . . 1869
Lamberton, J. F., . . . 1872

Tarrytown, Westchester Co.

Alsdorf, John, ... 1872

West New Brighton, S. I.

McRae, William H., . . 1861

West Farms.

Webb, Henry E., . . . 1865

Yonkers.

Stephens, William G., . . 1860
Toplis, Robert J., . . . 1863

NORTH CAROLINA.

Chapel Hill.

Saunders, Richard B., . . 1858

Raleigh.

Menninger, Henry J., M.D., . 1866

Washington.

Gallagher, Charles K., . . 1857

OHIO.

Cincinnati.

Adderly, William H., . . 1854
Archibald, Henry C., . . 1867
Arons, William C., . . . 1854
Ayers, James M., . . . 1872

Berghausen, Edward, . . 1864
Chapman, William B., . . 1852
Eger, George, ... 1864
Fennel, Adolphus, . . . 1864
Foertmyer, Adolphus W., . 1864
Fratz, John G., . . . 1864
Gordon, Oliver F., . . . 1857
Gordon, William J. M., . . 1854
Greve, Theodore L. A., . . 1864
Heineman, Otto, . . . 1864
Helman, Charles M., . . 1864
Henkel, Augustus, . . . 1865
Hill, Alfred C., . . . 1864
Hill, Hiram H., . . . 1864
Hottendorf, Augustus, . . 1864
Judge, John F., . . . 1866
Karrmann, William, . . 1864
Keeshan, John, . . . 1864
Lloyd, John Uri, . . . 1870
Markward, James, . . . 1864
Merrell, William S., . . 1854
Odena, Frederick M., . . 1866
Reinlein, Paul, . . . 1856
Reum, Hermann F., . . 1864
Scott, John, ... 1854
Taylor, James E., . . . 1869
Tully, Andrew J., . . . 1862
Wayne, Edward S., . . 1854
Wells, Jacob David, . . 1864
Yorston, Matthew M., . . 1864

Alliance.

Barr, Peter H., . . . 1867

Ashland.

Foltz, William K., . . . 1872

Bryan.

Snyder, Alva L., M.D., . . 1873

Canton.

Geiger, Conrad John, . . 1866
Geiger, Walter P., . . . 1867

Circleville.

Fickhardt, George H., . . 1864

Cleveland.

Bock, August W., . . . 1872
Gaylord, Henry C., . . . 1869
Hartness, William H., . . 1872
Hensch, Hugo, . . . 1872
Huling, Bruce, . . . 1872
Mayell, Alfred, . . . 1872
McElhenie, Thomas D., . . 1872
Merkel, Louis J., . . . 1871
Moore, James Penn, . . 1872
Myers, Daniel, . . . 1872
Scott, William J., . . . 1872
Spenzer, Peter J., . . . 1872
Vaupel, Charles P., . . 1872

Columbus.

Huston, Charles, . . . 1872
Matt, Joseph, ... 1872
Ritson, Alfred, . . . 1870
Roberts, John S., . . . 1872

Dayton.

Crawford, John S., . . . 1868
Dietrich, Jacob W., . . 1856

Dresden.

Dorsey, Thomas B., . . 1866

Elyria.

Hill, Frank P., . . . 1872

Logan.

Harrington, Frank, . . . 1869

Navarre.

Garver, Alexander, . . . 1866
Grossklaus, John F., . . 1859

Salem, Columbiana Co.

Hawkins, M. Smith, . . 1870

Shreve.

Bertolett, William J., . . 1872

South Charleston.

Allen, Alexander B., . . 1869

Springfield.

Casper, Thomas J., M.D., . 1867
Hensel, Samuel T., . . . 1872
Ludlow Charles, . . . 1872

Toledo.

Daniels, Thomas, . . . 1866
Hohly, C., ... 1872

Utica.

Boyd, Abraham, . . . 1869

Wooster.

Ohliger, Lewis P., . . . 1871

Youngstown.

Neal, Leander, . . . 1858

OREGON.

Portland.

Hodge, Charles, . . . 1859

PENNSYLVANIA.

Philadelphia.

Abell, Walter B., . . . 1867
Angney, John R., . . . 1867
Bakes, William C., . . . 1864
Bauer, Louis G., M.D., . . 1867
Blair, Andrew, . . . 1865
Blair, Henry C., . . . 1868
Blinkhorn, George, . . . 1860
Boring, Edwin McC., . . 1867
Bower, Henry, . . . 1860
Bower, Henry A., . . . 1868
Bowman, Henry K., . . 1869
Bullock, Charles, . . . 1857
Bunting, Samuel S., . . 1857
Caldwell, James Marshall, . 1866
Campbell, Samuel, . . . 1864
Carberry, P. Joseph L., . . 1870
Chapman, Samuel, M.D., . 1857
Chipman, Edward D., . . 1872
Coombe, Thomas R., . . 1860
Cramer, Henry, . . . 1867
Crew, J. Lewis, . . . 1860
Delker, Frederick J., . . 1868
Dobbins, Edward T., . . 1867
Eberle, Charles L., . . . 1865
Eddy, Henry C., . . . 1869
Eldridge, George W., . . 1865
Ellis, Charles, ... 1852
Ellis, Evan T., . . . 1857
England, Robert, . . . 1868
Erben, John S., . . . 1868
Evans, William, Jr., . . 1860
Everhart, Augustus, . . 1867
Fox, Daniel S., . . . 1872
Fox, Peter P., ... 1869
Grahame, Israel J., Phar.D., . 1856
Grove, John E., . . . 1868
Haenchen, Charles Eugene, . 1865
Hance, Edward H., . . . 1857
Hancock, Charles West, . . 1868
Hassard, Peter J., . . . 1853
Heintzelman, Joseph A., . . 1858
Hubbell, Orange Scott, . . 1857
Hurst, John C., . . . 1868
Jefferson, Charles L., . . 1869
Jenks, William J., . . . 1858
Johnson, Benjamin F., . . 1859
Jones, Daniel S., . . . 1859
Jones, Edward C., . . . 1864
Jones, Samuel T., . . . 1867
Kay, Isaac W., . . . 1870
Keeney, Caleb R., . . . 1868
Keys, Roger, ... 1868
Koch, Louis, ... 1872
Krause, William, . . . 1870
Lancaster, Thomas A., . . 1859
Lippincott, Henry B., . . 1868
Maisch, John M., Phar.D., . 1856
Matos, Louis A., . . . 1872
McCollin, Samuel Mason, . 1864
McIntyre, William, . . 1868
Mellor, Alfred, . . . 1864
Miller, Adolphus W., M.D., . 1868
Milligan, Decatur, . . . 1867
Moore, Joachim Bonaparte, . 1860
Needles, Caleb H., . . . 1868
Parrish, Clemmons, . . 1868
Parrish, Dillwyn, . . . 1857
Peck, Henry T., . . . 1868
Perot, T. Morris, . . . 1857
Pile, Wilson H., M.D., . . 1857
Platzer, Robert, . . . 1865
Power, Frederick B., . . 1872
Preston, David, . . . 1868
Procter, William, Jr., Phar.D., 1853

Raser, William H., . . . 1869
Reed, Philemon S., . . . 1870
Remington, Joseph P., . . 1867
Riley, Charles W., . . . 1868
Rittenhouse, Henry N., . . 1857
Robbins, Alonzo, . . . 1865
Roche, Edward Manning, . 1868
Roche, William Ford, . . 1868
Rosengarten, Mitchell G., . 1869
Scattergood, George J., . . 1860
Seeger, Roland, . . . 1868
Selfridge, Matthew M., . . 1858
Shivers, Charles, . . . 1860
Shinn, James T., . . . 1860
Shoemaker, George Y., . . 1862
Shoemaker, Joseph L., . . 1867
Shoemaker, Richard M., . . 1869
Shryock, Allen, . . . 1868
Smith, Isaac W., . . . 1867
Snowdon, George M., . . 1857
Souder, Joseph A., . . . 1870
Taylor, Alfred B., . . . 1852
Thompson, William B., . . 1858
Tilge, Frederick A., . . 1868
Trinder, William, . . . 1870
Troth, Samuel F., . . . 1857
Van Orsdel, William E., . 1868
Vogelbach, Hermann A., . 1868
Warner, William R., . . 1857
Weaver, J. Thornton, . . 1868
Webb, William H., M.D., . 1867
Weber, William, . . . 1872
Weidemann, Charles A., . 1868
Wiegand, Thomas S, . . 1857
Wilder, Hans M., . . . 1866
Wilson, Adam H., . . . 1859
Wright, Archibald W., . . 1868

Allegheny City.

Ahl, C. L., ... 1872
Brill, William H., . . . 1872
Davis, David, Jr., . . . 1872
Eggers, Frederick H., . . 1872
Lutz, Harrison S., . . . 1872
Neely, Joseph F., . . . 1872

Bellefonte.

Green, Francis P., . . . 1864

Bethlehem.

Borhek, James T., Jr., . . 1867
Eggert, Charles H., . . 1857
Luckenbach, Edward H., . 1870
Meyers, Edward T., . . 1867
Rau, Eugene A., . . . 1870

Chambersburg.

Cressler, Charles H., . . 1868
Heyser, William, Jr., . . 1856

Columbia.

Meyers, James A., . . . 1867

Danville.

Von Nieda, John W., . . 1868

Erie.

Nick, Hermann Charles, . . 1869
Nick, William Frederick, Jr., 1869

Harrisburg.

Egle, William H., M.D., . 1870

Lancaster.

Heinitsh, Charles A., . . 1857
Hubley, Alfred A., . . . 1870

Lebanon.

Lemberger, Joseph L., . . 1858

Mansfield, Allegheny Co.

Christy, Robert, . . . 1871

Meadville.

Sorensen, Sophus, . . . 1872

Oil City.

Griffith, Albert R., . . . 1870

Pittsburg.

Abel, Joseph, ... 1864
Caldwell, Joseph F., . . 1872
Cherry, James B., . . . 1868
Hostetter, Charles M., . . 1870
Mattern, John C., . . . 1860
Ottinger, Franklin, . . . 1871
Rankin, Alfred J., . . . 1864

Pottstown.

Cunningham, John M., . . 1867

Pottsville.

Kennedy, George W., . . 1869
Latham, Edward, . . . 1871

Quakertown.

Penrose, Stephen F., . . 1871

Reading.

Raser, John B., . . . 1872
Stein, Jacob H., . . . 1869
Ziegler, Philip Milton, . . 1867

Towanda.

Porter, Henry C., . . . 1869

Wilkesbarre.

Tener, Richard, Jr., . . 1868

Williamsport.

Duble, Jesse Balderston, . . 1870

RHODE ISLAND.

East Greenwich.

Congdon, Albert J., . . 1860

Newport.

Blackman, Lyman R., . . 1865

Providence.

Calder, Albert L., . . . 1859

Westerly.

Lattimer, Robert F., . . 1857

SOUTH CAROLINA.

Columbia.

Heinitsh, Edward H., . . 1867
Silliman, Lewis T., . . . 1859

TENNESSEE.

Bolivar.

Larwill, Joseph H., Jr., . . 1858

Knoxville.

Albers, George W., . . 1872

Memphis.

Bennet William R., . . 1871
Carson, Edwin J., . . . 1871
Hampson, Hugh H., . . 1869
Hoerner, Theodore, . . 1871
Johnston, Charles P., . . 1868
Robinson, James S., . . 1869
Steel, Frank L., . . . 1870
Steever, Henry C., . . . 1865
Uhl, Charles F., . . . 1866

Nashville.

Ewing, William G., . . 1872
Laurent, Eugene L., . . 1872
Lillard, Benjamin, . . . 1869
Wharton, J. C., . . . 1872

TEXAS.

Galveston.

Kellam, Stewart, . . . 1871

UTAH.

Salt Lake City.

Perkins, William Alexander, . 1869

VERMONT.

Brandon.

Cheney, Judson Rollin, . . 1868
Crossman, George A., . . 1872

Rutland.

Higgins, Albert H., . . 1870
Lewis, Elam C., . . . 1870

Springfield.

Warren, C. H., . . . 1872

VIRGINIA.

Alexandria.

Stabler, Richard H., M.D., . 1856

Fredericksburg.

Hall, Marshall C., . . . 1870

Richmond.

Hazard, Thomas H., . . 1870
Howard, Thomas A., . . 1871
Nolting, Adolphus W., . . 1870

WEST VIRGINIA.

Charleston.

Boggs, E. L., ... 1872

WISCONSIN.

Beloit.

Collins, Charles Frederick Gove, 1859

Fond du Lac.

Curren, Edward S., . . . 1869

Green Bay.

Cherot, Leonce, . . . 1865

Maxomanie.

Senier, Alfred, . . . 1869

Milwaukie.

Drake, John R., . . . 1860

Prairie du Chien.

Wright, Edward M., . . 1869

Tomah.

Griggs, Osmon J., . . . 1869

DOMINION OF CANADA.

QUEBEC.

Montreal.

Edwards, John Baker, . . 1868
Gray, Henry R., . . . 1867
Mercer, Nathan, . . . 1867
Nelson, Wolfred D. E., . . 1870

ONTARIO.

Bradford.

Morgan, George Webster, Jr., 1867

Guelph.

Petrie, Alexander Bain, . . 1867

Hamilton.

Lawrence, Thomas, . . . 1867

London.

Moore, William Maurice, . 1866
Saunders, William, . . . 1860

Stratford.

Waugh, George W., . . 1862

Toronto.

Rose, Henry J., . . . 1872

WEST INDIES.

BERMUDA.

Hamilton.

Heyl, James B., . . . 1863

CUBA.

Cardenas.

Cahill, John F., . . . 1870

U. S. OF COLOMBIA.

Panama.

Herbruger, Florence C., . . 1867

NICARAGUA.

Granada.

Guzman, Horace, . . . 1871

LIST OF DECEASED MEMBERS.

HONORARY MEMBERS.

		Elected.	Died.
Bache, Franklin, M.D.,	Philadelphia, Pa.,	1857,	1864
Boullay, Pierre François Guillaume,	Paris, France,	1868,	1869
Farrington, Thomas,	Boston, Mass.,	1856,	1867
Robinet, Stephane,	Paris, France,	1868,	1869

ACTIVE MEMBERS.

		Elected.	Died
Anderson, James H.,	New York, N. Y.,	1859,	1866
Bache, Charles L.,	San Francisco, Cal.,	1852,	1854
Backus, James W.,	Marine City, Mich.,	1867,	1870
Balmer, James,	Baltimore, Md.,	1856,	1866
Barry, John W.,	Baltimore, Md.,	1856,	1861
Baylis, William E. P.,	Brooklyn, N. Y.,	1860,	1872
Baynon, John,	Shrevesport, La.,	1858,	1862
Benzinger, John Sylvester,	Baltimore, Md.,	1860,	1869
Bigelow, Francis O.,	Medford, Mass.,	1859,	1863
Bingham, John C.,	St. Johnsbury, Vt.,	1853,	1870
Billings, Samuel J.,	New York, N. Y.,	1860,	1865
Blair, Henry C.,	Philadelphia, Pa.,	1855,	1862
Blauw, Hippolyt A.,	Rochester, N. Y.,	1856,	1870
Bright, James Evesson,	Worcester, Mass.,	1868,	1872
Bringhurst, Ferris,	Wilmington, Del.,	1862,	1871
Brown, John T.,	Boston, Mass.,	1859,	1860
Canavan, Benjamin,	New York, N. Y.,	1855,	1857
Carney, Charles Tibbetts,	Boston, Mass.,	1853,	1862
Caspari, Charles,	Baltimore, Md.,	1856,	1870
Churchill, George W.,	Chelsea, Mass.,	1865,	1869
Clency, William F.,	Cincinnati, O.,	1859,	1865
Colby, Moses D.,	Boston, Mass.,	1859,	1870
Coon, Walter S.,	New York, N. Y.,	1858,	1861
Coppuck, Peter V.,	Mount Holly, N. J.,	1857,	1869
Cressman, Noah,	Waterloo, Canada West,	1863,	1864
Cunningham, James E.,	Pittsburg, Pa.,	1860,	1863

		Elected.	Died.
Cushman, Alexander,	New York, N. Y.,	1858,	1861
Davies, Robert J.,	Brooklyn, N. Y.,	1858,	1872
D'Evers, Henry Gaston,	Chicago, Ill.,	1865,	1870
Dodge, John P.,	New York, N. Y.,	1855,	1863
Easterbrook, Ray B.,	New York, N. Y.,	1858,	1868
Emanuel, Louis M., M.D ,	Linwood, Pa.,	1857,	1868
Everson, John C.,	Philadelphia, Pa.,	1863,	1872
Fish, George B.,	Saratoga Springs, N. Y.,	1860,	1866
Fish, Henry F.,	New York, N. Y.,	1852,	1868
Forester, Richard,	Brooklyn, N. Y.,	1860,	1862
Gabaudan, Arthur W.,	New York, N. Y.,	1862,	1870
Gay, William,	Cambridgeport, Mass.,	1858,	1862
Gerhard, John C.,	Cincinnati, O.,	1862,	1866
Geyer, Andrew,	Boston, Mass.,	1853,	1855
Groneweg, Louis,	Cincinnati, O.,	1864,	1866
Harbaugh, Valentine,	Washington, D. C.,	1856,	1871
Hegeman, Frederick Augustus,	New York, N. Y.,	1855,	1860
Hendel, Samuel D.,	St. Louis, Mo.,	1858,	1871
Hill, Henry E.,	Detroit, Mich.,	1866,	1868
Jardella, Jerome B.,	Vincennes, Ind.,	1865,	1870
Jenkins, William Ellis,	Boston, Mass.,	1865,	1869
John, Frederick L.,	Philadelphia, Pa.,	1856,	1864
Junghanns, Charles A.,	Cincinnati, O.,	1858,	1862
Kennedy, Robert C.,	Cleveland, O.,	1865,	1868
Kent, Asbury,	Cincinnati, O.,	1854,	1860
Kent, William,	Cincinnati, O.,	1864,	1867
King, Henry,	New York, N. Y.,	1858,	1867
Knapp, Edwin E.,	Norwalk, Conn.,	1860,	1862
Laidley, Joseph,	Richmond, Va.,	1852,	1861
Lane, James B.,	Fitchburg, Mass.,	1856,	1867
Leitch, Alexander,	St. Louis, Mo.,	1858,	1868
Little, William B.,	Panama, U. S. Colombia,	1857,	1867
Longshaw, William, Jr., M.D.,	Bayou Sara, La.,	1858,	1864
Lyon, Charles H., Jr.,	Boston, Mass.,	1858,	1871
McDonald, John,	Brooklyn, N. Y.,	1860,	1861
McIntyre, Timothy C., M.D.,	Washington, D. C.,	1858,	1862
McPherson, George B.,	Cincinnati, O.,	1867,	1871
Massot, Eugene L.,	St. Louis, Mo.,	1857,	1871
Maxwell, James T.,	New York, N. Y.,	1855,	1860
Mayer, Ferdinand F.,	New York, N. Y.,	1859,	1869
Meakim, John (Pres. 1855–56),	New York, N. Y.,	1852,	1863
Muller, William H.,	Chicago, Ill.,	1865,	1870
Nagle, John G.,	Baltimore, Md.,	1863,	1869
Nadand, James W.,	Cincinnati, O.,	1864,	1868
Norgrave, Samuel K.,	Pittsburg, Pa.,	1857,	1871
Olliffe, William J., M.D.,	New York, N. Y.,	1858,	1866

		Elected.	Died.
Osgood, Samuel W.,	Davenport, Iowa,	1858,	1860
Palmer, Albert G.,	Washington, D. C.,	1858,	1860
Parker, Herschel,	Brooklyn, N. Y.,	1867,	1870
Parrish, Edward (Pres. 1868–69),	Philadelphia, Pa.,	1852,	1872
Peck, Samuel P.,	Bennington, Vt,	1853,	1859
Philbrick, Samuel R., M.D.,	Boston, Mass.,	1852,	1859
Phillips, Llewellyn,	Baltimore, Md.,	1856,	1865
Polhemus, James L.,	Sacramento, Cal,	1866,	1867
Pollard, Charles P.,	Marysville, Cal.,	1859,	1869
Pyle, J. Lindley,	Brooklyn, N. Y,	1859,	1866
Rehfuss, Lewis,	Cincinnati, O.,	1854,	1856
Reifsnider, William E.,	Baltimore, Md.,	1864,	1872
Roberts, David,	Boston, Mass.,	1858,	1863
Rollman, Frederick,	Philadelphia, Pa.,	1862,	1864
Roemer, Daniel,	Cincinnati, O.,	1865,	1870
Sands, Jesse M.,	New York, N. Y.,	1860,	1867
Scully, Harmar D.,	Pittsburg, Pa.,	1858,	1866
Smith, Charles Augustus,	Cincinnati, O.,	1852,	1862
Smith, Edwin R.,	Monmouth, Ill.,	1862,	1869
Squire, William H.,	Germantown, Pa.,	1862,	1865
Steiner, Henry,	Philadelphia, Pa.,	1857,	1858
Stevens, Ashbel Mead,	Cincinnati, O,	1854,	1860
Stevens, Rufus Walker,	Somersworth, N. H.,	1859,	1868
Sweetser, Thomas Augustus,	South Danvers, Mass.,	1859,	1860
Taylor, Robert J.,	Newport, R. I.,	1859,	1871
Taylor, William,	Philadelphia, Pa.,	1868,	1871
Thomas, William,	Jersey City, N. J.,	1855,	1856
Waite, Samuel B.,	Washington, D. C.,	1858,	1862
Warren, William,	Brighton, Mass.,	1867,	1871
Watson, William P.,	Brooklyn, N. Y.,	1853,	1872
Weyman, George W., Ph.D.,	Pittsburg, Pa.,	1858,	1864
White, Daniel F.,	Charlestown, Mass.,	1859,	1864
White, William P.,	Chicago, Ill.,	1865,	1866
Whitehead, Silas,	Lynchburg, Va.,	1856,	1858
Wilson, George C.,	Boston, Mass.,	1859,	1861
Wiseman, Charles,	Baltimore, Md.,	1856,	1862
Witzell, L.,	Cincinnati, O.,	1864,	1867
Wood, G. Davidge,	Baltimore, Md.,	1856,	1863
Woods, Samuel H.,	Boston, Mass.,	1859,	1869

LIST OF RESIGNATIONS.

Name.	Residence.	Elected.
Holland, James M., †	Jackson, Mich.,	1866
Jones, Isaac E.,*	St. Louis, Mo.,	1858
Leamy, James C.,*	Baltimore, Md.,	1867
O'Brien, Joseph C.,ʒ	Baltimore, Md.,	1863
Perrot, E. Raphael,*	Philadelphia, Pa.,	1858
Rademaker, Charles J.,†	Louisville, Ky.,	1867
Sanborn, Jeremiah, Jr.,†	Dorchester, Mass.,	1865
Shuey, William H.,*	St. Paul, Minn.,	1864
Sieger, William S.,‡	South Bethlehem, Pa.,	1867
Simes, J. Henry C., M.D.,*	Philadelphia, Pa.,	1865

LIST OF MEMBERS DROPPED FROM THE ROLL.

Name.	Residence.	Elected.
Arnold, Ezra W.,	East Abington, Mass.,	1868
Bispham, James L.,	Philadelphia, Pa.,	1865
Blaney, James V. Z., M.D.,	Chicago, Ill.,	1865
Brown, George W.,	Logansport, Ill.,	1865
Colman, Frederick W.,	Napa City, Cal.,	1865
Dana, Alfred C.,	Augusta, Me.,	1859
Drake, Robert S.,	Troy, N. Y.,	1869
England, Howard,	Phillipsburg, Pa.,	1868
Evans, Clarence A.,	Unknown,	1870
Fiske, Calvin J.,	Unknown,	1869
Fitch, Charles H.,	Unknown,	1869
Foertmyer, Charles H.,	Cincinnati, O.,	1864
Geyer, Andrew,	Ipswich, Mass.,	1865
Gristock, Charles F.,	Unknown,	1864
Harless, Adolphus,	St. Louis, Mo.,	1871
Malone, Charles P.,	Quincy, Ill.,	1869
Mason, Alfred,	New York, N. Y.,	1865
McKechnie, William W.,	Jersey City, N. J.,	1868
Metzger, John F.,	St. Louis, Mo.,	1871
Miller, Robert T.,	Cincinnati, O.,	1869
O'Farrell, Henry T.,	Kankakee, Ill.,	1869

* Left the business. † No reason given. ‡ Inability to attend the meetings.
ʒ Ill-health.

Name.	Residence.	Elected.
Poorman, Samuel F.,	Unknown,	1869
Rhodes, Robert R., M.D.,	Brooklyn, N. Y.,	1865
Rogers, Charles F.,	Boston, Mass.,	1860
Savell, Charles E.,	Roxbury, Mass.,	1860
Tourtelot, Emil P.,	Unknown,	1866
Tourtelot, Frank J.,	Unknown,	1866
Wolf, Joseph A.,	Baltimore, Md.,	1868
Worthington, Joseph Muse,	Unknown,	1868

INDEX.

Acacia, supply of, 122
Acid, carbolic, in creasote, 66, 244
citric, market value of, 118
oxalic, value of, 119
phosphoric, glacial, analysis of commercial, 66, 259
tartaric, market supply of, 118
Aconite leaves, supply of, 124
root, note on, 229
Adjournment, 112
Album, photographic, presentation of, 56, 95
Aloes, note on, 97, 236
supply of, 122
Amendment to by-laws, action on, 53
proposed, 10, 110
constitution, proposed, 10, 86
Anise, supply of, 128
Apparatus and appliances on exhibition, 170
Apprentices, preliminary education of, 88, 173
Arnica flowers, abundance of, 122
Assafœtida, market supply of, 122

Balluff, Paul, pharmaceutical legislation in the United States, 73, 161
Balsams, supply and value of, 119
Barks, market supply of, 119
Belladonna leaves, scarcity of, 124
Bismuth and ammonia, citrate of, 97, 260
decline of metallic, 119
Brady, Henry B., presentation of album from, 56
Bright, James Evesson, deceased, 30
Bromine, supply of, 116
Brown, Robert J., unofficinal preparations, 87, 207
Buchu, supply of, 124

Cacao butter, letter on, 96
Calabar beans, supply of, 120
Camphor, value of, 122
Cannabis Indica, extract of, 97, 218
Cantharides, supply of, 121
Cantharidin and potassa, 61
Cardamom, supply of, 128
Chamomile flowers, scarcity of, 122
Chemicals, market of, 115
on exhibition, 170
Chinese blistering flies, 88, 246
Cinchona bark, market of, 119
Close, George C., vegetable wax in pharmaceutical preparations, 88, 223
Committees—
auditing, appointed, 51
report of, 53
business, nominated, 45
report of, 36
executive, nominated, 45
report of, 30
on adulterations, appointed, 74
no report from, 29, 42
on arrangements for meeting in 1876 continued, 74
on credentials, appointed, 25
report of, 27, 47, 72
on delegation from Georgetown College, appointed, 47
report of, 69
on drug market, nominated, 45
report of, 53, 114
on editorship of report on progress of pharmacy, appointed, 96, 112
on elixirs, appointed, 111
on exhibition, appointed, 54
report of, 110, 168
on legislation, continued, 74
report of, 60, 145, 301
on liquor dealers' license of apothecaries, report and continued, 29
on nominations, appointed, 35
report of, 45
on papers and queries, nominated, 45
report of, 58, 105
on photographic album, report, 56, 95
on place of meeting, appointed, 69
report of, 97
on President's address and Secretary's report, appointed, 44
report of, 74

Committees—
on progress of pharmacy, nominated, 45
suggestions in regard to, 39, 74, 75, 112
telegram from, 68
on representative delegations, appointed, 72
report of, 110
on stamp tax, appointed, 111
report of, 94
on unofficinal formulas, continued, 73
telegram from, 72
Copaiba, supply of, 119
Covell, Thomas J., on a serviceable drug mill, 64, 180
Creasote, carbolic acid in, 66, 244
Cubebs, decline of, 121
Cundurango, supply of, 120

Davies, Robert J., deceased, 31
Delegate from Georgetown College, objection against receiving, 47
withdrawal of, 69
Delegations, representative, discussion on, 71
report on, 110
Dispensing counter, 65, 192
Drug market, report on, 53, 114
mill, a serviceable, 64, 180
Drugs, crude, on exhibition, 168
Duty on drugs and druggists' sundries, rates of, 132

Eberbach, Ottmar, alkaloids in commercial elixirs, 80, 264
Education, preliminary, of apprentices, 88, 173
Elixir of mandrake, compound, 97, 218
Elixirs, alkaloids in commercial, 80, 264
discussion on, 80
Entertainments, 112
Ergot, supply of, 122
Everson, John C., deceased, 30
Exhibition, report on, 168
visit to the, 59
Extractum cannabis Indicæ, 97, 220

Fennel, market of, 128
Flaxseed, supply of, 128
Fredigke, Ch. C., manufacture of chemical and pharmacal preparations, 97, 200
Furniture, shop, on exhibition, 170

Gardner, Robert W., a protected solution of ferrous nitrate, 97, 218
Gentian, supply of, 127
Glassware and its manufacture, 90
Glycerin, market of, 122
Grassly, Ch. W., seidlitz powders, 89, 273
Gums, market of, 122

Hancock, John F., the dispensing counter, 65, 192
Harrop, Joseph, on an herb press, 97, 179
Helenium autumnale and tenuifolium, 88, 233
Herb press, an improved, 97, 179

Ignatius bean, supply of, 121
Invitations extended, 67
received, 53, 78, 85, 94
Ipecac, market of, 127
Iron, a protected solution of nitrate of, 97, 218

Jalap, market, 127
Juniper berries, decline of, 121

Law, pharmacy, of Baltimore, 153
New York, 150, 165
Philadelphia, 156
San Francisco, 158
South Carolina, 301
Lemberger, Joseph L., production of milk sugar in the United States, 64, 245
Lillard, Benjamin, Tennessee opium, 87, 241
Lime, chlorinated, supply of, 116
Lincoln H. W., letter on cacao butter, 96
List of authorized agents, 319
committees, 4
deceased members, 346
delegates, 27, 47, 72
members dropped, 349
present, 23
officers, 3, 7
publications received, 318
prices for drugs, 128
queries dropped, 103
to be reported on, 11, 105
resignations, 349
societies, &c., receiving Proceedings, 315
Lycopodium, scarcity of, 125
Lytta, American species of, 88

Maisch, John M., Chinese blistering bugs, 88, 246
Secretary's report, 31
sneezeweed, 88, 233
Manna, supply of, 125
Manufacture of chemical and pharmacal preparations, 97, 200
glassware, 90

McKesson, John, Jr., report on the drug market, 114
Meeting, selection of place and time of next, 102
Meloe, American species of, 88
Members, deceased, 30, 346
dropped, 349
elected, 26, 48, 72, 111
honorary, 329
elected, 111
present at meeting, 23
resigned, 349
roll of, 330
Mercury, supply of, 125
Meteorological reports, practical use of, 304
Milk sugar, production of, in the United States, 64, 245
Mineral waters, formulas for artificial, 66
Minutes of the first session, 25
second session, 44
third session, 59
fourth session, 67
special session, 86
fifth session, 94
Morphia, market of, 117
Mylabris cichorii, 247
phalerata, 251

Obituary notices, 30
Officers, election of, 46, 48
Oil of erigeron, tests for, 242
Oils, market of, 125, 143
on exhibition, 170
Opium, supply and value of, 123
Tennessee, 87, 241

Parrish, Prof. Edward, the preliminary education of apprentices, 88, 173
Pepsin in elixirs, 81
Percolator, new form of, 94, 182
Permanent fund, 39, 74, 78, 86
Peruvian balsam, supply of, 119
Pharmaceuticals on exhibition, 171
Pharmacopœia, complimentary copies of, to foreign societies, 95
Pharmacy act. (See *Law, pharmacy.*)
Pharmacy, special report on, 173
Pills, triplex, of Dr. Francis, 97, 222
Potassium, bromide, consumption of, 116
cantharidate, discussion on, 61
chlorate, supply of, 116
iodide, advance of, 116
Prescott, Prof. A. B., glacial phosphoric acid of commerce, 66, 259
Prescriptions ordering special preparations, 82
President's annual address, 38
inaugural address, 48
Proceedings, stock of, 31

Queries, discussion on acceptance of, 54
Queries, dropped, 103
to be reported on, 11, 105
Quinia, sulphate, market of, 143

Report of Rhode Island Board of Pharmacy, 146
Secretary, 31
Treasurer, 48
Reports meteorological, practical use of, 304
of committees, 114
auditing, 53
business, 36
executive, 30
on credentials, 27, 47, 72
delegation from Georgetown College, 69
drug market, 53, 114
exhibition, 110, 168
legislation, 60, 145, 301
liquor dealer's license of apothecaries, 29
nominations, 45
papers and queries, 105
photographic album, 56, 95
place of meeting, 97
President's address and Secretary's report, 74
representative delegations, 110
stamp tax, 94
special and volunteer, 173
read, 60, 80, 87, 94, 97
Resolution of invitation, 67
Resolutions of thanks, 48, 110, 112
on life membership, 60
on poison bottles, 34, 75
Rhubarb, market of, 127
note on, 226
overland route importation of, 65
Rother, R., seneka, 64, 209
Roots, supply of, 127, 142
Rose leaves, supply of, 122

Saffron, commerce in, 127
Sander, Enno, on commercial creasote, 66, 244

Sarsaparilla, commercial, 87, 127
Saunders, William, extract. cannabis Indicæ, 97, 220
Schafer, George H., compound elixir of mandrake, 97, 218
Secretary, local, election of, 110
permanent, report of, 31
withdrawal of resignation, 42
Seeds, supply of, 128
Seidlitz powders, commercial, 273
measures for, 89
putting up of, 89
Seneka, commercial, 127, 142
essay on, 64, 209
Senna, supply of, 124
Shoemaker, Richard M., report on Philadelphia drug market, 142
Signal, cautionary, 309
office, presentation of maps and bulletins from, 57
service of the United States, 303
Smith, R. P., address on glassware, 90
Sneezeweed, 88, 233
Squibb, Dr. E. R., citrate of bismuth and ammonia, 97, 260
new form of percolator, 94, 182
Squibb, Dr. E. R., note on aconite root, 65, 229
note on aloes, 97, 236
note on rhubarb, 65, 226
note on triplex pills, 97, 222
Syrupus ferri protonitratis, 97, 218
Syrupus senegæ, preparation of, 64

Taylor, Robert J., deceased, 30
Tolu balsam, market value of, 119
Tonca beans, supply of, 120
Treasurer's report, 48
Turpentine, Canada, supply of, 119
Venice, price of, 128

Vanilla, scarcity of, 120

Watson, William P., deceased, 30
Wax, supply of, 142
vegetable, in pharmaceutical preparations, 88, 223
Weather-maps, graphic, 308
practical use of, 304
Weeks, Eugene J., on oil of erigeron, 64, 242

Meteorological Record, October 9, 1872—7.35 A. M.

Place of Observation.	Barometer.	Thermom.	Humidity; per cent.	Wind. Direction	Wind. Velocity.	Clouds. Amount of lower.	Clouds. Amount of upper.	Clouds. Direction of upper.	Rain-fall; last 8 hours.	State of Weather.
Alpena	29.82	54	80	S	4	1-4	Hazy	.....	.....	Foggy.
Augusta, Ga.	30.23	55	80	Calm	0	Sm'y	1-4	.....	.....	Fair.
Baltimore	30.23	50	77	N	6	Fog	0	.....	.....	Clear.
Boston	30.10	52	73	NW	6	0	2-4	NW	.....	Fair.
Breckenridge	30.28	27	76	N	18	0	0	.....	.....	Clear.
Buffalo	30.04	56	81	SW	9	Sm'y	0	.....	.....	do
Burlington	30.14	48	61	N	5	0	0	.....	.....	do
Cairo	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Cape May	30.17	51	65	NW	8	0	0	.....	.....	Clear.
Charleston	30.18	64	62	N	9	Hazy	0	.....	.....	do
Cheyenne	30.17	36	46	N	2	2-4	2-4	.....	.....	Cloudy.
Chicago	30.01	51	74	S	20	0	0	.....	.....	Clear.
Cincinnati	30.22	53	86	Calm	0	Fog	.....	.....	.....	Foggy.
Cleveland	30.12	54	73	S	3	0	0	.....	.....	Clear.
Corinne	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Davenport	30.02	57	81	W	5	Sm'y	0	.....	.....	Clear.
Denver	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Detroit	30.03	55	68	SW	8	Hazy	0	.....	.....	Fair.
Duluth	29.94	38	54	SW	8	0	1-4	NW	.....	do
Escanaba	29.83	51	76	SW	6	4-4	.....	.....	.....	Cloudy.
Fort Benton	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Fort Sully	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Galveston	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Grand Haven	29.99	61	65	SW	14	0	0	.....	.....	Clear.
Indianapolis	30.16	51	78	S	1	Fog	0	.....	.....	Fair.
Indianola	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Jacksonville	30.12	69	90	N	8	0	2-4	N	.....	Fair.
Keokuk	29.97	60	73	SW	5	1-4	0	.....	.....	Clear.
Key West	29.95	81	74	NE	12	0	1-4	NE	.....	Fair.
Kingston	30.15	50	86	S	4	0	0	.....	.....	Clear.
Knoxville	30.20	49	92	Calm	0	Fog	0	.....	.....	Fair.
Lake City	30.06	68	95	NE	8	2-4	0	.....	.....	do
Leavenworth	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Louisville	30.15	49	93	Calm	0	Fog	.....	.....	.....	Foggy.
Lynchburg	30.26	46	100	Calm	0	Fog	0	.....	.....	Fair.
Marquette	29.81	47	62	Calm	0	0	2-4	SW	.....	do
Memphis	30.15	52	86	NE	4	Sm'y	0	.....	.....	Clear.
Milwaukee	29.88	58	70	W	16	Sm'y	Hazy	.....	.....	do
Mobile	30.07	73	80	E	4	4-4	.....	.....	.....	Cloudy.
Montgomery	30.12	66	78	NE	5	0	2-4	NW	.....	Fair.
Montreal	30.17	45	84	W	3	0	0	.....	.....	Clear.
Mt. Washington	30.09	32	79	NW	10	0	1-4	NW	.....	do
Nashville	.....	.....	.....	.....	.....	.....	.....	.....	.....	
New London	30.12	49	78	NW	7	0	0	.....	.....	Clear.
New Orleans	29.99	73	95	E	8	4-4	.....	.....	.10	Light rain.
New York	30.14	51	65	NW	16	Sm'y	Hazy	.....	.....	Fair.
Norfolk	30.20	59	76	N	4	Sm'y	Hazy	.....	.....	do
Omaha	30.13	42	58	N	9	Hazy	Hazy	.....	.....	do
Oswego	30.11	46	82	S	4	Fog	Hazy	.....	.....	do
Philadelphia	30.22	48	66	N	16	Hazy	Hazy	.....	.....	do
Pittsburgh	30.18	44	83	E	1	Fog	.....	.....	.....	Foggy.
Port Dover	30.05	56	87	S	9	0	0	.....	.....	Clear.
Port Stanley	30.07	60	82	SW	3	0	0	.....	.....	do
Portland, Me	30.06	49	78	W	4	0	0	.....	.....	do
Portland, Ore	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Punta Rassa	30.03	76	81	NE	8	0	0	.....	.....	Clear.
Quebec	30.06	43	83	W	12	0	0	.....	.....	do
Rochester	30.11	43	79	SW	4	0	0	.....	.....	do
San Diego	.....	.....	.....	.....	.....	.....	.....	.....	.....	
San Francisco	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Santa Fe	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Saugeen	29.89	52	86	SW	5	0	0	.....	.....	Clear.
Savannah	30.17	63	78	N	4	Hazy	1-4	W	.....	Fair.
Shreveport	30.04	74	66	N	4	2-4	2-4	W	.....	Cloudy.
St. Louis	30.09	55	74	S	6	Hazy	0	.....	.....	Clear.
St. Paul	30.10	42	75	W	8	4-4	.....	.....	.....	Cloudy.
Toledo	30.04	55	80	S	8	Hazy	0	.....	.....	Clear.
Toronto	30.06	47	91	Calm	0	Sm'y	1-4	W	.....	Fair.
Vicksburg	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Virginia City	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Washington, D. C	30.23	48	85	NW	1	0	0	.....	.....	Clear.
Wilmington, N.C	30.20	56	74	NE	6	0	0	.....	.....	do

WASHINGTON, D. C., Wednesday, October 9, 1872, 7.35 A. M.

SYNOPSIS.

The barometer has risen and is highest in Virginia and the South Atlantic States, with clear weather and northerly winds in the latter, and northerly to easterly winds and partly cloudy weather on the Gulf. Northerly to westerly winds, with rising barometer and cold weather in the Northwest, extending over the upper Mississippi valley. Southerly to westerly winds on the Lakes, with the lowest barometers north of Lake Huron. In the Middle States and New England continued northerly to westerly winds and clear weather.

PROBABILITIES.

In New England and the Middle States clear weather with northerly to westerly winds, veering to southerly and westerly, with diminished pressure, to-night. In the South Atlantic and Gulf States continued northerly winds, veering to northeasterly and easterly, with partly cloudy weather on the Gulf, but clear weather elsewhere. In the Northwest, on the Upper Lakes, and thence to the Lower Lakes and the lower Ohio valley increasing pressure, southerly to westerly winds, veering to northerly and westerly by to-night, with partly cloudy and clear weather, and occasional light rain on the Upper Lakes. The conditions are favorable for frost in the Northwest and upper Mississippi valley to-night. The telegraph has failed to forward the weather reports from nearly all stations west of the Mississippi river, and also those in the Southwest.

FACTS—4.35 P. M., (following the 7.35 A. M. "Probabilities.")

SYLLABUS. (1.) *Clear Stations*—Wind, light at Burlington, S., Stanley and Lynchburg, SW., Wilmington, NE., and Cairo, E.; gentle at Boston and New London, W., Virginia City, E., Baltimore, SW. Cape May, SE., Montgomery, E., Norfolk, NE., Vicksburg, N., and Saugeen, Oswego and Washington, S.; fresh at Quebec, Kingston, Knoxville, Indianapolis, Cleveland, Toronto, Escanaba, Cheyenne, and Corinne, SW., Montreal, Portland, Me., Dover, Cincinnati and Toledo, S., Fort Benton and Denver, NE., Philadelphia, Louisville, St. Louis, Rochester, and Buffalo, W., and Keokuk, Grand Haven, and Davenport, N.W.; brisk at Marquette, W., and Fort Sully, NW.

(2.) *Fair or partly cloudy Stations*—Calm at New York. Wind, gentle at Pittsburgh and Nashville, SW., Memphis, NW., and Augusta, NE.; fresh at Charleston, Savannah, Lake City, and Indianola, E.; Punta Rassa, NE., Shreveport, NW., Chicago, W., Detroit, SW., and Denver, S.; brisk at Jacksonville and Key West, NE., Leavenworth, N., St. Paul, W., and San Francisco, SW.

(3.) *Cloudy Stations*—Wind, gentle at Galveston, NE.; fresh at Mobile, SE., and Duluth and Milwaukee, W.; brisk at Breckenridge and Omaha, NW., and on Mt. Washington, W.

(4) *Rainy Stations*—Wind, fresh at New Orleans, E.

General Remarks.—During the day easterly winds, cloudy weather and rain areas have continued from western Florida to southern Texas; the pressure rapidly increased from the lower Missouri valley to the Upper Lakes, with fresh to high northerly to westerly winds. The above "Probabilities" were verified, except "in the New England and Middle States northerly to westerly winds" during the day, and "partly cloudy weather on the Gulf," partly verified, and "winds veering to northerly and westerly by to-night on the Lower Lakes," and "light rain on the Upper Lakes," non-verified.

Place of Observation.	Barometer.	Thermom.	Humidity; per cent.	Wind.		Clouds.			Rain-fall; last 8 hours.	State of Weather.
				Direction	Velocity.	Amount of lower.	Amount of upper.	Direction of upper.		
Alpena	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Augusta, Ga.	30.14	75	33	NE	4	0	1-4	W	.....	Fair.
Baltimore	30.12	67	50	SW	4	Hazy	0	. .....	.....	Clear.
Boston	30.01	64	35	W	3	0	0	.....	.....	do
Breckenridge	30.36	37	86	NW	36	4-4	.....	.....	.....	Cloudy.
Buffalo	29.87	65	84	W	12	Sm'y	0	.....	.....	Clear.
Burlington	29.85	58	53	S	2	Hazy	0	.....	.....	do
Cairo	30.07	75	61	E	2	0	2-4	.....	.....	do
Cape May	30.11	60	54	W	4	0	0	.....	.....	do
Charleston	30.14	70	57	E	8	0	2-4	NW	.....	Fair.
Cheyenne	30.08	73	19	SW	6	0	Hazy	.....	.....	Clear.
Chicago	29.96	65	44	W	12	1-4	1-4	SW	.....	Fair.
Cincinnati	30.06	72	40	S	7	Sm'y	0	.....	.....	Clear.
Cleveland	29.95	70	45	SW	12	0	0	.....	.....	do
Corinne	30.08	73	63	SW	6	0	0	.....	.....	do
Davenport	30.14	57	25	NW	8	Hazy	2-4	NW	.....	do
Denver	30.28	55	39	NE	10	Hazy	0	.....	.....	do
Detroit	29.85	70	52	SW	9	Hazy	2-4	.....	.....	Fair.
Duluth	30.04	42	48	W	13	0	4-4	NW	.....	Cloudy.
Escanaba	29.80	56	46	SW	14	0	0	.....	.....	Clear.
Fort Benton	30.51	37	37	NE	6	0	0	.....	.....	do
Fort Sully	30.28	43	25	NW	20	2-4	0	.....	.....	Clearing.
Galveston	29.96	76	86	NE	4	4-4	.....	.....	.02	Cloudy.
Grand Haven	29.90	60	49	NW	12	Hazy	0	.....	.....	Clear.
Indianapolis	29.98	71	43	SW	10	0	0	.....	.....	do
Indianola	29.96	77	81	E	8	2-4	1-4	E	.....	Fair.
Jacksonville	30.11	77	63	NE	16	0	2-4	NE	.....	do
Keokuk	30.08	61	35	NW	13	0	0	.....	.....	Clear.
Key West	29.98	85	60	NE	16	0	2-4	NE	.....	Fair.
Kingston	29.91	61	69	SW	13	0	0	.....	.....	Clear.
Knoxville	30.09	72	51	SW	6	0	1-4	.....	.....	do
Lake City	30.02	80	70	E	8	0	2-4	E	.....	Fair.
Leavenworth	30.19	61	20	N	16	0	2-4	.....	.....	do
Louisville	30.02	73	49	W	7	Hazy	0	.....	.....	Clear.
Lynchburg	30.14	67	52	SW	1	Hazy	0	.....	.....	do
Marquette	29.85	49	32	W	20	0	0	.....	.....	do
Memphis	30.07	76	41	NW	4	0	2-4	S	.....	Fair.
Milwaukee	29.92	58	32	W	13	Sm'y	4-4	W	.....	Cloudy.
Mobile	30.07	76	81	SE	10	4-4	.....	.....	.....	do
Montgomery	30.05	82	55	E	5	0	4-4	NW	.....	do
Montreal	29.92	58	64	S	6	0	0	.....	.....	Clear.
Mt. Washington	30.11	36	70	W	18	Hazy	0	.....	.....	do
Nashville	30.10	76	49	SW	4	0	2-4	W	.....	Fair.
New London	30.04	58	69	W	5	0	0	.....	.....	Clear.
New Orleans	29.96	74	95	E	8	4-4	.....	.....	2.19	Light rain.
New York	30.05	62	46	Calm	0	Sm'y	2-4	.....	.....	Fair.
Norfolk	30.15	63	54	NE	3	Hazy	0	.....	.....	Clear.
Omaha	30.28	45	16	NW	16	4-4	.....	.....	.....	Cloudy.
Oswego	29.89	67	60	S	4	Hazy	0	.....	.....	Clear.
Philadelphia	30.11	64	52	W	8	Hazy	0	.....	.....	do
Pittsburgh	29.99	70	44	SW	4	Hazy	2-4	.....	.....	Fair.
Port Dover	29.95	65	58	S	11	0	0	.....	.....	Clear.
Port Stanley	29.95	65	73	SW	2	0	0	.....	.....	do
Portland, Me	29.99	54	74	S	8	0	0	.....	.....	do
Portland, Ore	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Punta Rassa	29.97	86	52	NE	10	0	2-4	E	.....	Fair.
Quebec	29.92	54	93	SW	13	0	0	.....	.....	Clear.
Rochester	29.89	71	80	W	8	Hazy	0	.....	.....	do
San Diego	.....	.....	.....	.....	.....	.....	.....	.....	.....	
San Francisco	29.87	63	67	SW	20	Hazy	2-4	SW	.....	Fair.
Santa Fe	29.90	68	18	S	10	0	1-4	.....	.....	do
Saugeen	29.93	64	78	S	5	1-4	0	.....	.....	Clear.
Savannah	30.13	72	49	E	8	Hazy	2-4	W	.....	Fair.
Shreveport	29.98	82	52	NW	6	0	2-4	W	.....	do
St. Louis	29.97	74	42	W	8	Hazy	0	.....	.....	Clear.
St. Paul	30.19	40	79	W	20	0	2-4	NW	.....	Fair.
Toledo	29.88	71	53	S	12	0	0	.....	.....	Clear.
Toronto	29.87	61	67	SW	11	Hazy	0	.....	.....	do
Vicksburg	30.03	83	59	N	4	2-4	2-4	.....	.....	Cloudy.
Virginia City	30.00	41	36	E	4	0	0	.....	.....	Clear.
Washington, D. C	30.10	69	52	SE	4	Sm'y	0	.....	.....	do
Wilmington, N.C	30.14	72	49	NE	2	Hazy	0	.....	.....	do

WASHINGTON, D. C., Wednesday, October 9, 1872, 4.35 P. M.

SYNOPSIS.

The barometer has rapidly risen in the Northwest, with clear weather and cold, brisk and high northerly to westerly winds, extending through the upper Mississippi valley, in diminishing force, and over the Upper Lakes, Illinois and Michigan. Northerly to easterly winds and partly cloudy weather prevail in the Gulf and South Atlantic States, with rain on the western Gulf. Southerly to westerly winds, with diminished pressure and clear weather on the Lower Lakes and thence over the Middle and New England States.

PROBABILITIES.

For the Northwest and upper Mississippi valley and thence over the Upper Lakes and to the lower Ohio valley brisk northerly to westerly winds and cold, clear or partly cloudy weather. On the Gulf and south Atlantic coasts northerly to easterly winds, with generally clear weather. On the Lower Lakes partly cloudy weather, with possibly occasional rain. Over the Middle and Eastern States winds veering to southerly and westerly, with diminishing pressure and warmer and partly cloudy weather, on Thursday.

FACTS—11 P. M., (following the 4.35 P. M. "Probabilities.")

SYLLABUS. (1.) *Clear Stations*—Calm at New London, Pittsburgh, Washington, Charleston, Savannah, Knoxville, Nashville, Louisville, Denver, and Virginia City. Wind, light at Corinne, NW., Cheyenne and Wilmington, NE., Boston, W., and Baltimore, SW.; gentle at Cincinnati, Stanley and Montreal, S., Philadelphia, W., Punta Rassa, NE., and Norfolk, SE.; fresh at San Francisco, Toronto, Buffalo, Escanaba and New York, SW., Omaha, St. Louis, and Indianapolis, NW., St. Paul and Detroit, W., and Burlington, Dover, and Cleveland, S.; brisk at Leavenworth, N., Davenport, NW., Rochester, SW., Kingston, S., Key West, E., and on Mt. Washington, W.

(2.) *Fair or partly cloudy Stations*—Calm at Augusta. Wind, light at Lynchburg, SW., and Memphis, NW.; gentle at Lake City, E., and Jacksonville, NE.; fresh at Oswego, S., Saugeen, N., and Keokuk, NW.

(3.) *Cloudy Stations*—Calm at San Diego. Wind, light at Shreveport, N., and Montgomery, E.; gentle at New Orleans, E.; fresh at Chicago, W., Toledo, SW., and Quebec, S.; brisk at Marquette, W.; high at Grand Haven and Milwaukee, NW.

(4.) *Rainy Stations*—Gentle at Mobile, SE.

General Remarks.—During the evening easterly winds, cloudy weather and rain-areas have continued from western Florida to southern Texas, also the pressure rapidly increasing from the lower Missouri valley to the Upper Lakes, with fresh to high northerly and westerly winds. The above "Probabilities" were generally verified, except "on the Gulf coast generally clear weather," non-verified.

PLACE OF OBSERVATION.	Barometer.	Thermom.	Humidity; per cent.	WIND.		CLOUDS.			Rain-fall; last 8 hours.	STATE OF WEATHER.
				Direction	Velocity.	Amount of lower.	Amount of upper.	Direction of upper.		
Alpena	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Augusta, Ga.	30.21	61	71	Calm	0	0	2-4	NW	.....	Fair.
Baltimore	30.09	58	70	SW	2	Hazy	0	.....	.....	Clear.
Boston	29.99	52	77	W	2	0	0	.....	.....	do
Breckenridge	30.49	30	83	NW	0	1-4	0	.....	.....	Fair.
Buffalo	29.82	60	82	SW	12	0	0	.....	.....	Clear.
Burlington	29.91	53	51	S	14	2-4	0	.....	.....	Fair.
Cairo	..	.....	.....	.....	.....	.....	.....	.....	.....	
Cape May	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Charleston	30.17	65	78	Calm	0	0	0	.....	.....	Clear.
Cheyenne	30.35	34	43	NE	1	0	0	.....	.....	do
Chicago	30.12	48	44	W	20	4-4	.....	.....	.....	Cloudy.
Cincinnati	30.11	60	76	S	3	Sm'y	0	. .....	.....	Clear.
Cleveland	29.95	60	55	S	8	0	0	.....	.....	do
Corinne	30.13	55	43	NW	2	0	0	. .....	.....	do
Davenport	30.31	43	72	NW	16	Hazy	0	.....	.....	do
Denver	30.41	43	43	Calm	0	0	0	.....	.....	do
Detroit	29.88	61	66	W	8	4-4	.....	.....	.....	Cloudy.
Duluth	30.14	39	56	NW	30	0	2-4	NW	.....	Fair.
Escanaba	29.98	39	64	SW	10	0	0	.....	.....	Clear.
Fort Benton	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Fort Sully	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Galveston	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Grand Haven	29.96	50	38	NW	30	0	4-4	NW	.....	Cloudy.
Indianapolis	30.03	60	60	NW	8	Hazy	0	.....	.....	Clear.
Indianola	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Jacksonville	30.15	67	84	NE	4	0	1-4	NE	.....	Fair.
Keokuk	30.26	48	36	NW	12	0	Hazy	.....	.....	do
Key West	29.97	80	74	E	16	0	0	.....	.....	Clear.
Kingston	29.85	59	85	S	15	0	0	.....	.....	do
Knoxville	30.14	56	93	Calm	0	0	1-4	NW	.....	do
Lake City	30.11	68	84	E	4	0	1-4	.....	..... .	Fair.
Leavenworth	30.44	45	37	N	20	0	0	.....	.....	Clear.
Louisville	30.05	62	77	Calm	0	0	0	.....	.....	do
Lynchburg	.....	52	93	SW	1	Hazy	2-4	.....	.....	Fair.
Marquette	29.96	38	55	W	20	4-4	.....	.....	.....	Cloudy.
Memphis	30.17	63	88	NW	2	Sm'y	2-4	.....	.....	Fair.
Milwaukee	30.07	41	41	NW	32	4-4	.....	.....	.....	Cloudy.
Mobile	30.09	72	95	SE	3	4-4	.....	.....	.12	Light rain.
Montgomery	30.11	74	76	E	2	4-4	.....	.....	.....	Cloudy.
Montreal.	29.82	53	73	S	3	0	0	.....	.....	Clear.
Mt. Washington	30.09	35	70	W	23	Hazy	0	.....	.....	do
Nashville	30.16	62	83	Calm	0	1-4	0	.....	.....	do
New London	30.03	51	86	Calm	0	0	0	.....	.....	do
New Orleans	30.02	74	95	E	4	4-4	.....	.....	.01	Cloudy.
New York	30.03	57	63	SW	8	0	0	.....	.....	Clear.
Norfolk	30.15	58	76	SE	3	0	0	.....	.....	do
Omaha	30.47	37	39	NW	8	0	0	.....	.....	do
Oswego	29.83	59	70	S	8	2-4	0	.....	.....	Fair.
Philadelphia	30.08	54	77	W	5	Hazy	Hazy	.....	.....	Clear.
Pittsburgh	30.00	53	80	Calm	0	Fog	0	.....	.....	do
Port Dover	29.96	59	82	S	10	0	0	.....	.....	do
Port Stanley	29.89	62	77	S	5	0	0	.....	.....	do
Portland, Me	29.95	49	78	S	9	0	0	.....	.....	do
Portland, Ore	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Punta Rassa	30.06	76	81	NE	5	0	0	.....	.....	Clear.
Quebec	29.74	45	96	S	7	2-4	.....	.....	.....	Cloudy.
Rochester	29.85	59	59	SW	16	0	0	.....	.....	Clear.
San Diego	30.03	64	83	Calm	0	4-4	.....	.....	.....	Cloudy.
San Francisco	30.00	56	81	SW	12	Hazy	Hazy	.....	.....	Clear.
Santa Fe	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Saugeen	29.80	55	74	N	6	0	0	.....	.....	Fair.
Savannah	30.17	64	78	Calm	0	0	0	.....	.....	Clear.
Shreveport	30.06	74	72	N	2	4-4	.....	.....	.....	Cloudy.
St. Louis	30.21	57	46	NW	10	0	0	.....	.....	Clear.
St. Paul	30.30	34	61	W	8	0	0	.....	.....	do
Toledo	29.89	62	61	SW	10	3-4	0	.....	.....	Cloudy.
Toronto	29.82	56	81	SW	8	0	0	.....	.....	Clear.
Vicksburg	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Virginia City	30.03	31	23	Calm	0	0	0	.....	.....	Clear.
Washington, D. C	30.11	57	81	Calm	0	0	0	.....	.....	do
Wilmington, N.C	30.18	60	88	NE	1	0	0	.....	.....	do

WASHINGTON, D. C., Wednesday, October 9, 11 P. M.

SYNOPSIS.

The barometer has continued to fall on Lake Ontario, and thence eastward over New England, with fresh southerly to westerly winds and clear weather. Generally clear weather, with southerly to westerly winds, in the Middle States. On the south Atlantic and Gulf coasts prevailing northerly to easterly winds, high barometer and clear weather. In the Northwest and through the upper Mississippi valley, extending over Lake Michigan and to the lower Ohio valley, brisk and high northerly to westerly winds, with partly cloudy weather, high pressures and low temperatures.

PROBABILITIES.

On the Lower Lakes winds southwesterly and veering to northerly and westerly, with cloudy weather and areas of rain, extending into the western portion of the Middle States on Thursday. On the Upper Lakes and in the upper Mississippi valley, and extending thence to the lower Ohio valley, brisk northerly to westerly winds, high barometer and generally clear weather. In the Middle States southerly to westerly winds, with partly cloudy weather, on Thursday. Clear weather and southerly winds over New England. Over the South Atlantic and Gulf States variable northerly winds and clear weather.

FACTS—October 10, 7.35 A. M., (following the 11 P. M. "Probabilities.")

SYLLABUS. (1.) *Clear Stations*—Calm at Augusta. Wind, gentle at Davenport and Charleston, N., Keokuk and New London, W., Portland, Me., and Baltimore, SW., and Washington, S.; fresh at Cape May and Burlington, S., Boston and Norfolk, SW., Punta Rassa, NE., Nashville and Indianapolis, N., and Chicago, W.; brisk at Mt. Washington and Toledo, W., and Memphis, N.

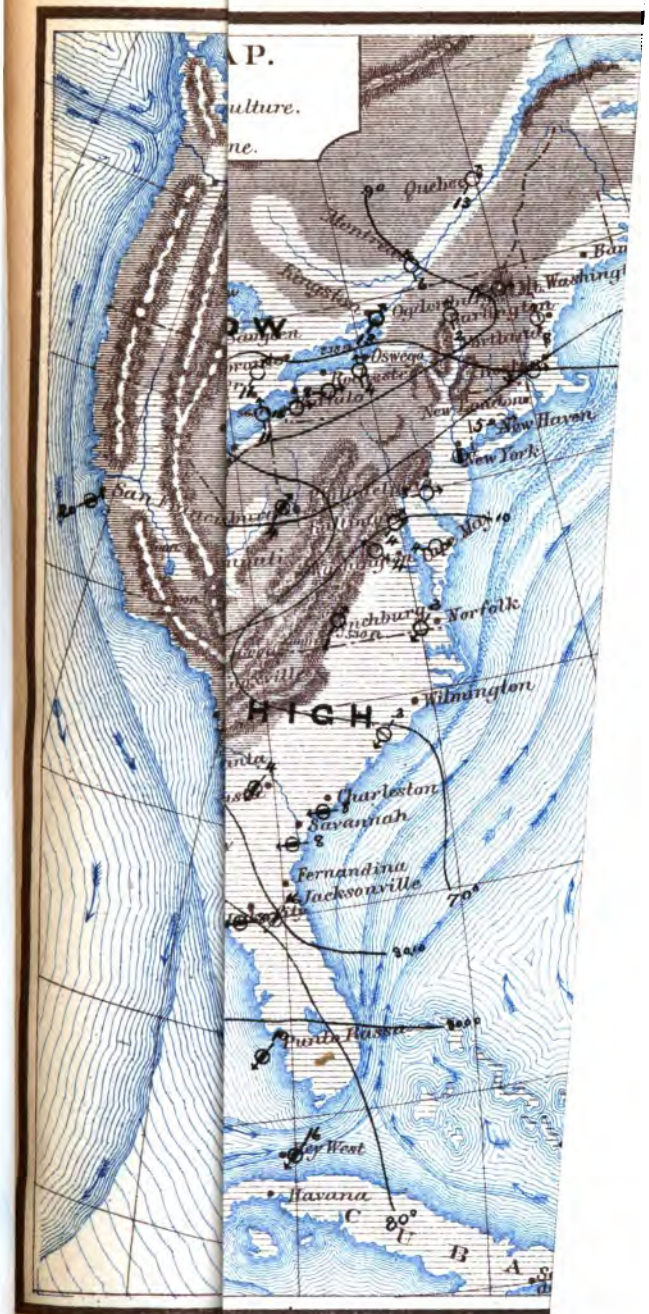
(2.) *Fair or partly cloudy Stations*—Calm at Savannah and Knoxville. Wind, light at Lynchburg, SW.; gentle at Philadelphia, SW., Wilmington and Lake City, NE., and Jacksonville, NW.; fresh at Escanaba, S., Detroit and Cincinnati, NW., and New York, SW.; brisk at Key West, NE., and Louisville, NW.

(3.) *Cloudy Stations*—Calm at Quebec and Montreal. Wind, light at Montgomery, N.; gentle at Dover and Pittsburgh, W., and Stanley, NW.; fresh at Saugeen, SW., Toronto and Cleveland, NW., New Orleans, NE., and Galveston, N.; brisk at Marquette, W., and Grand Haven and Oswego, N.

(4.) *Rainy Stations*—Wind, gentle at Mobile, NE.; fresh at Buffalo, N., and Rochester, NW.

General Remarks.—Since midnight cloudy weather and rain-areas have continued from western Florida to southern Texas, and prevailed over northwestern New York; also the pressure rapidly increasing from Tennessee to the Northwest and Lakes, with fresh and brisk northerly to westerly winds. The above "Probabilities" were verified, except—"in the Middle States partly cloudy weather on Thursday," "clear weather and southerly winds over New England," and "over the South Atlantic and Gulf States variable northerly winds and clear weather," partly verified.

P.
ulture.
Quebec
Bangor
Washington
Portland
Oswego
Rochester
Buffalo
Boston
New Haven
New York
Philadelphia
Cape May
Norfolk
Wilmington
Charleston
Savannah
Fernandina
Jacksonville
Pueblo Rassa
Key West
Havana
Santiago de Cuba
ST. DOMINGO


P.
ulture.
ne.
Quebec
Montreal
Kingston
Oswego
New London
New Haven
New York
Norfolk
Wilmington
HIGH
Charleston
Savannah
Fernandina
Jacksonville
70°
Key West
Havana
80°
C
B
A

1 gal.
259+